HB 2962 | Applied Behavior Analysis Report

December 2016

Oklahoma Health Care Authority

Oklahoma Department of Mental Health and Substance Abuse Services

Oklahoma State Department of Education — Champion Excellence

Oklahoma State Department of Health

Oklahoma Department of Human Services

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Introduction

According to the Centers for Disease Control, one in 68 children has an autism spectrum diagnosis (ASD), higher than previous years.[1] As the number of children diagnosed with ASD has increased in the past decade, the demand for discussion at both the state and federal level has left questions on what treatment options should be covered, how to manage increased costs and what provider network requirements are necessary for access.

States have been engaged by various stakeholders on their approach to ASD treatment options available within the private insurance arena, as well as through publicly funded health programs. Treatment options include behavioral and educational interventions, complementary and alternative medicine, dietary changes or medications to manage or relieve the symptoms of autism. Some states have been directed through legislative mandates, while others have services available that developed out of necessity. As such, the inclusion of applied behavior analysis (ABA) treatment has been at the center of the debate in state capitols across the country. Public health care and education programs, while acknowledging there are a variety of treatment options to care for ASD, also understand the reality of declining revenue in state budgets.

Passed during the 2nd regular session of the 55th Legislature, House Bill 2962 (HB 2962), authored by Representative Jason Nelson and Senator AJ Griffin, directs the Oklahoma Health Care Authority (OHCA) and partnering state agencies (Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS), Oklahoma State Department of Education (OSDE), and the Oklahoma State Department of Health (OSDH)) to study and prepare a report concentrating on the use of applied behavior analysis therapy treatment for children with ASD within the state's Medicaid program. In the last six months, the interagency workgroup has developed a comprehensive report examining the current landscape of treatment options available to ASD children through state services, the medical evidence behind ABA treatment, services offered by other states and the fiscal impact to Oklahoma if ABA treatment is included as a covered Medicaid benefit. The data referenced throughout this report includes information from SFY2010 through SFY2016.

Oklahoma Environment and HB2962

In the last decade, 44 states, the District of Columbia, and the U.S. Virgin Islands have passed legislation requiring the coverage of various ASD treatment options in private and/or public health plans.[2]

In 2008, an interim study was hosted by members of the Oklahoma state legislature to look at ASD treatment options throughout public and private insurance coverage. Following the study, in 2009

[1] Centers for Disease Control and Prevention (March 27, 2014); http://www.cdc.gov/media/releases/2014/p0327-autism-spectrum-disorder.html

[2] Autism Speaks, "State Initiatives"; https://www.autismspeaks.org/state-initiatives

legislators directed the Oklahoma Department of Human Services (DHS) Developmental Disabilities Services (DDS) division to provide for licensing of Board Certified Behavior Analysts (BCBA) and certification of Board Certified Assistant Behavior Analysts (BCaBA) based on the National ABA certification completion.[3] In addition to licensure and certification, the 2009 law provided for an ABA treatment pilot project utilizing BCBAs, parental training, and supervision of those individuals in the state seeking board certification. The ConnectedKids pilot project "focuses on empowering parents to use certain strategies to support their child with ASD."[4] The pilot project had a total of 15 parent-child dyads participating in the 12-week parent training in home or a community setting. A report summarizing the results and recommendations for the ConnectedKids program was published in March 2014, with funding from the Oklahoma Department of Human Services Developmental Disabilities Services division. The ConnectedKids report recommended development of the pilot project for statewide implementation if funding is provided.

Another law passed in 2010 related to ASD coverage requires all individual and group health insurance policies to provide coverage and benefits for children (under 18) who have been diagnosed with an autistic disorder, the same as coverage and benefits are provided for other children. [5]

HB 2962 was signed by Governor Mary Fallin on May 4, 2016. In addition to authorizing this report, HB 2962 directed health benefit plans and the Oklahoma Employees Health Insurance Plan to include ABA treatment options. The new law took effect Nov. 1, 2016, and set mandatory caps and maximum benefit allowances for ABA treatment. The law also defined the type of services and providers eligible to receive reimbursement for ASD treatment, including ABA. Earlier versions of the legislation directed the SoonerCare program to be included in those coverage requirements and caps. However, in light of the economic downturn, the state's ability to fund additional ASD treatment was not feasible. State elected officials opted to further review and research how ABA could impact Oklahoma's publicly funded health care and education programs.

The specific language directing the content of this report is found in Section 2 of HB 2962. The entire text of HB 2962 is available under Appendix A.

> *SECTION 2. NEW LAW A new section of law to be codified in the Oklahoma Statutes as Section 1011.12 of Title 56, unless there is created a duplication in numbering, reads as follows:*
> *A. The Oklahoma Health Care Authority, in conjunction with the Department of Mental Health and Substance Abuse Services, the State Department of Health and the State Department of Education shall examine the feasibility of a state plan amendment to the Oklahoma Medicaid Program for applied behavior analysis treatment of autism spectrum disorders.*

[3] 59 O.S. § 1928
[4] Oklahoma Autism Network, "ConnectedKids" (March 31, 2014); http://okautism.org/about/connectkids.asp
[5] 36 O.S. § 6060.20

B. On or before December 31, 2016, the Authority and partnering agencies shall submit a report to the President Pro Tempore of the Senate, the Speaker of the House of Representatives and the Governor estimating the potential costs to the state, clinical findings, reviews of pilot projects and research from other states on the effects of applied behavioral analysis treatment on autism spectrum disorders.

C. Beginning July 1, 2017, and subject to the availability of funding, the Authority and partnering agencies shall draft a state plan amendment for applied behavior analysis treatment of autism spectrum disorders. The provisions of this subsection shall only apply if the report required by subsection B of this section demonstrates applied behavioral analysis treatment to be evidence-based and essential to qualifying participants in the Oklahoma Medicaid Program.

D. As used in this section:

1. "Applied behavior analysis" means the design, implementation and evaluation of environmental modifications, using behavioral stimuli and consequences, to produce socially significant improvement in human behavior, including the use of direct observation, measurement and functional analysis of the relationship between environment and behavior;

2. "Autism spectrum disorder" means any of the pervasive developmental disorders or autism spectrum disorders as defined by the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the edition that was in effect at the time of diagnosis;

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

a. necessary to develop, maintain or restore, to the maximum extent practicable, the functioning of an individual, and

b. provided by a board-certified behavior analyst or by a licensed doctoral-level psychologist so long as the services performed are commensurate with the psychologist's university training and supervised experience; and

4. "Treatment for autism spectrum disorder" means evidence-based care and related equipment prescribed or ordered for an individual diagnosed with an autism spectrum disorder by a licensed physician or a licensed doctoral-level psychologist who determines the care to be medically necessary, including, but not limited to:

a. behavioral health treatment,

b. pharmacy care,

c. psychiatric care,

d. psychological care, and

e. therapeutic care.

Limitations

Limitations were identified throughout the development of this report by each agency. These challenges are included in an effort to help state legislators define how to address these issues that span multiple agencies. This list is not exhaustive and only includes the issues that arose during interagency research. Other limitations may exist.

- Provider access
    - Limited number of providers licensed in the state (as of Dec. 1, 2016, Oklahoma had 64 licensed BCBAs)
    - 14 of the 64 licensed by DHS are out of state providers
- Workforce development
    - The state has two education programs available with approximately 40 slots available.
    - Limited BCBAs available to supervise students completing required field work hours
- Funding
    - Limited resources available for appropriation to state agencies
- Coordination of intra-state systems
    - Technology lacks ability to share relevant data
    - Lack of data sharing agreements amongst state agencies
    - Comparison of public health programs vs. public education programs
    - Agencies utilize different terminology and measure different elements
- Other
    - Evidence-based literature shows some inconsistencies with a range of support and opposition amongst health care professionals
    - Comparing data and delivery models from other state Medicaid programs shows a variety of differences between states
    - Evaluation of state programs is limited due to recent implementation

Partnering Agencies

HB 2962 directs various state agencies to draft this report about ASD treatment options. The interagency workgroup felt it was imperative that before considering new treatments and coverage, to provide context on what services are being provided today. The partnering agencies for this report include OHCA, ODMHSAS, OSDH, OSDE, and DHS. Although DHS was not specifically mandated as an included party in the drafting of this report, the agency agreed to participate to ensure relevant information from DHS was included. The following sections provide an overview of current programs available for individuals with ASD and the collaborative efforts between agencies.

Oklahoma Health Care Authority and Oklahoma Department of Mental Health and Substance Abuse Services

The OHCA is the single state agency charged with administering the state's Medicaid program, known as SoonerCare. During SFY2016, more than one million unduplicated members received services through SoonerCare.

ODMHSAS is the state's statutory authority responsible for prevention, treatment and recovery of mental illness, substance abuse and addictive disorders. This includes management and oversight of the state's behavioral health Medicaid services along with rule-making responsibility for statutory certification processes stipulated by O.S., Title 43A. It is the agency's core mission to assure that prevention and treatment services are provided for all Oklahomans. The services, programs and initiatives undertaken by the department are dedicated to this end. ODMHSAS, primarily through a network of contracted private providers, delivers services to approximately 195,000 Oklahomans annually, of which around 111,000 are SoonerCare members. ODMHSAS provides prevention activities in all 77 counties, and certifies and reviews more than 3,300 public and private treatment providers (organizations and individuals) throughout the state.

The SoonerCare behavioral health benefit is jointly managed by the OHCA and the ODMHSAS. The state share for SoonerCare behavioral health services is funded by dollars appropriated by the Legislature to OHCA and ODMHSAS.

SoonerCare is required by federal law to provide medically necessary services and treatment to all SoonerCare members. Through Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) services, SoonerCare offers a variety of medically necessary treatment options for members birth through age 20.

Based on claims data, providers are billing SoonerCare for a variety of services for the ASD population, including but not limited to: psychotherapy, psychosocial rehabilitation services, family therapy, physical therapy (PT), occupational therapy (OT), and speech therapy (ST). Most of the behavioral health treatment paid for by SoonerCare is completed in a one-on-one setting with a therapist and member (individual therapy), or in a small group with the therapist, member, and family present. PT and OT are provided individually, and ST can be provided in a group or individual setting. In addition to these services, a member with ASD can receive intervention and medication management from a physician or qualified non-physician provider (NPP).

For behavioral health services, individuals and families are allowed up to three hours a week of group therapy services and a cumulative maximum of two hours per week for individual and family therapy. Individual psychosocial rehabilitation services are time limited, and an individual can receive up to one and a half hours per day, if deemed medically necessary. A child can receive up to four hours of group rehab services per day, if deemed medically necessary.

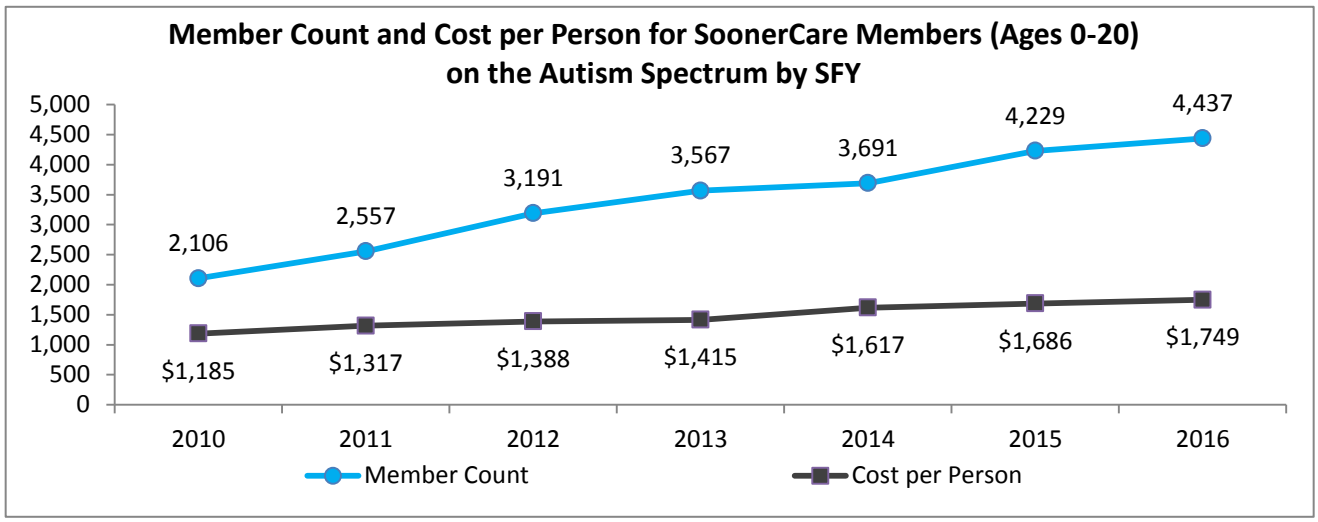
There are no maximum limits for physician or NPP visits for children. However, PT, OT and ST require a prior authorization and the services are available dependent on the member's documented need.

SoonerCare is not currently and has not in the past provided reimbursement for ABA treatments.

SoonerCare contracted providers that render services specific to ASD have varying levels of education and certifications.

SoonerCare Data (SFY2010 – SFY2016)[6]

OHCA's Data Governance and Analytics and Medical units analyzed claims data from members with ASD from SFY2010 to SFY2016. In SFY2010, OHCA served 2,106 members (birth-21) with ASD with an average cost per member of $1,185 per year. The number of members in the SoonerCare program, and the cost per member has increased slightly over the past seven years. SFY2016 data shows 4,437 SoonerCare members (birth-21) on the autism spectrum, with costs per member averaging $1,749/year (see Appendix B for technical notes).



SoonerCare children on the autism spectrum accounted for 0.7 percent or approximately 1 in every 146 SoonerCare children in SFY2016. Overall, SoonerCare children with autism had a slightly higher cost per person of $1,749 compared to cost per person for all SoonerCare children of $1,632.

A SoonerCare member was only counted if they had a reimbursed procedure linked with a diagnosis code related to ASD. Each year was analyzed individually and no consecutive list was made for someone who had been diagnosed the previous year. Taking that into account, there could be an under-representation of SoonerCare children with autism due to the limitations of this reporting method.

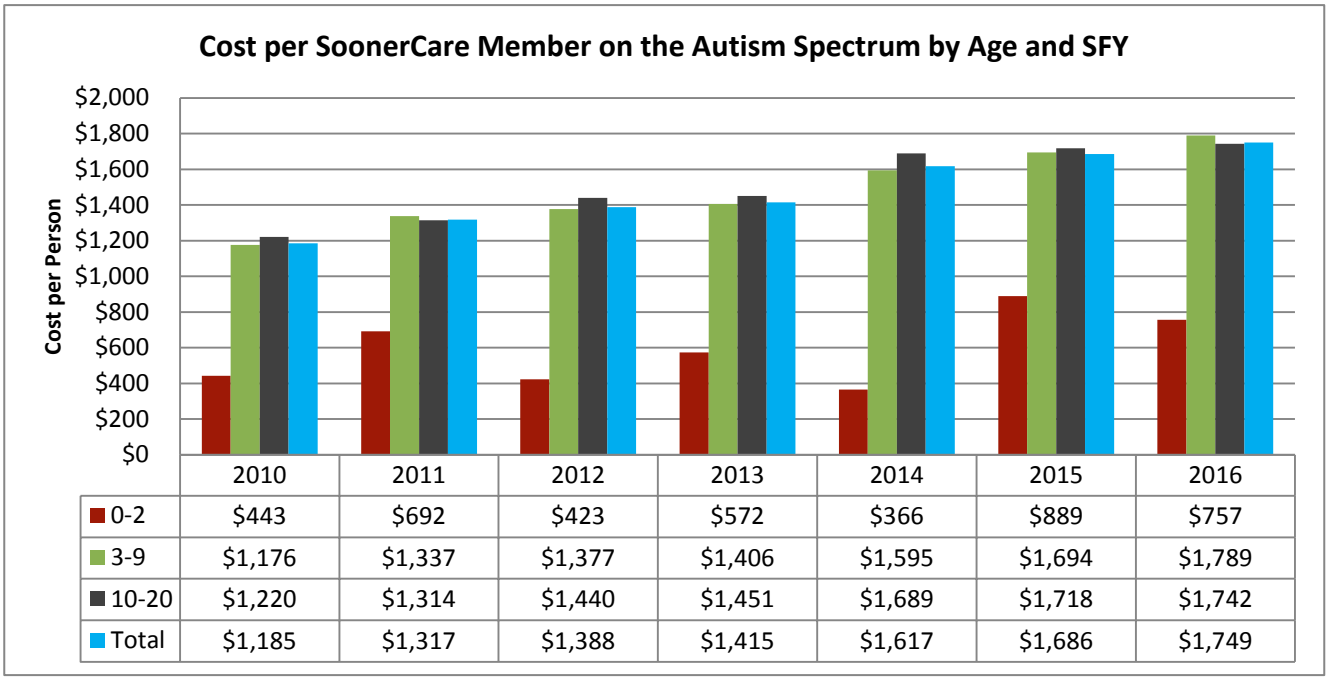
[6] Includes OHCA and ODMHSAS data

Member Count of SoonerCare Children on the Autism Spectrum by Gender and SFY		
SFY	Male	Female
2016	3,523	914
2015	3,315	914
2014	2,890	801
2013	2,806	761
2012	2,464	727
2011	2,009	548
2010	1,647	459

Cost per SoonerCare Child on the Autism Spectrum by Gender and SFY		
SFY	Male	Female
2016	$1,748	$1,753
2015	$1,674	$1,728
2014	$1,624	$1,591
2013	$1,406	$1,450
2012	$1,389	$1,383
2011	$1,316	$1,321
2010	$1,187	$1,178

There are significantly more males than females on the autism spectrum in the SoonerCare population, which matches national trends. Males accounted for 79 percent of the total of SoonerCare population with autism.

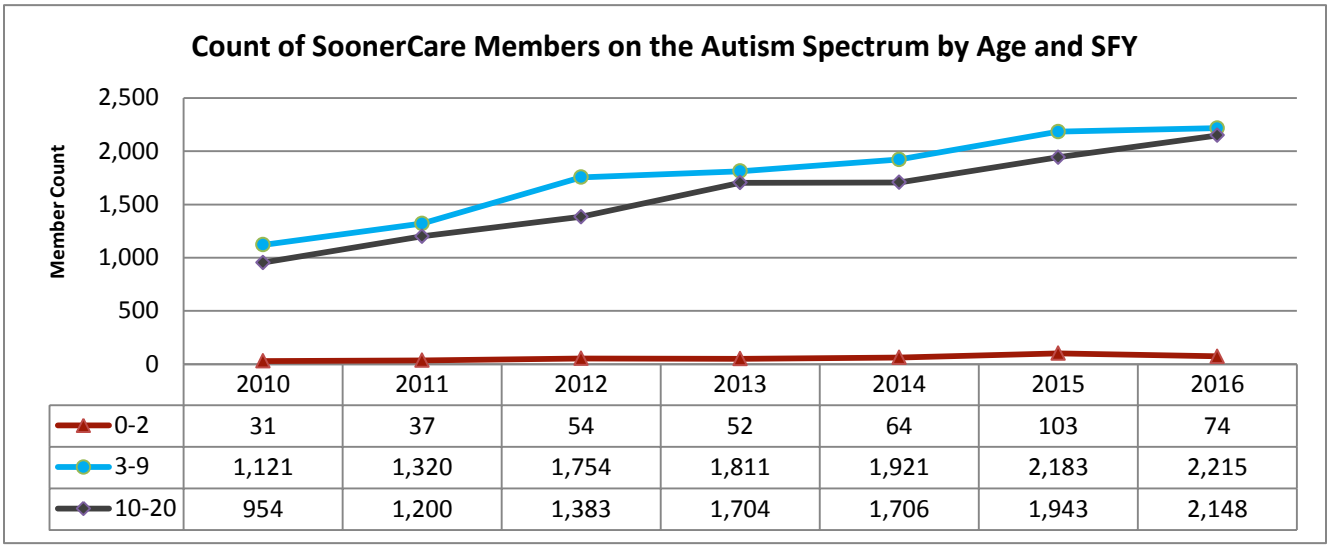
Data was retrieved from Oklahoma Health Care Authority's SFY2016 annual report. Data was only available for 20 years of age and younger. This number is contingent on final review from OHCA and may be subject to change. Cost per person was calculated by taking the total reimbursement and dividing it by the unduplicated number of members who received the paid services. Child is defined as an individual who is 20 years of age or younger.



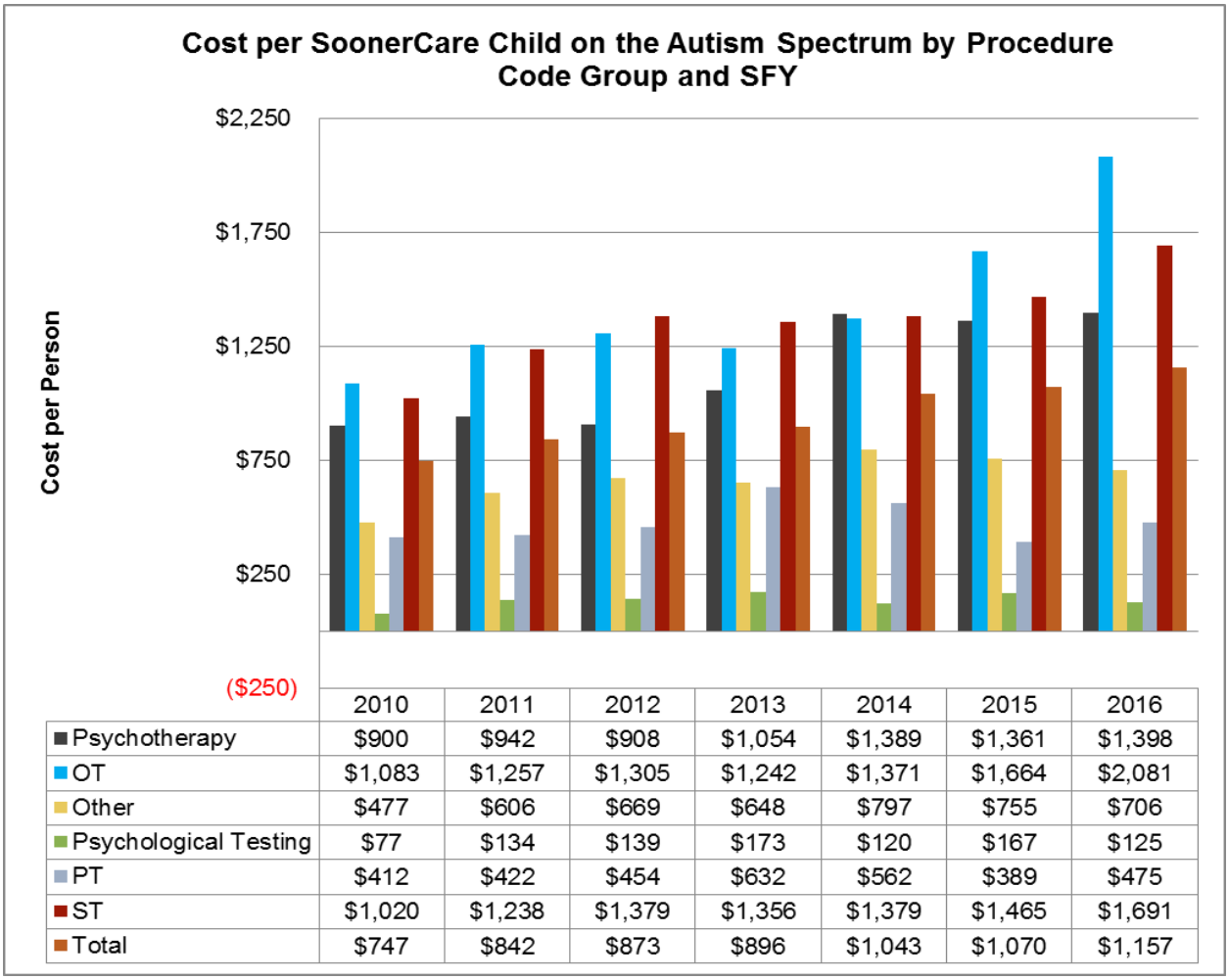
	2010	2011	2012	2013	2014	2015	2016
0-2	$443	$692	$423	$572	$366	$889	$757
3-9	$1,176	$1,337	$1,377	$1,406	$1,595	$1,694	$1,789
10-20	$1,220	$1,314	$1,440	$1,451	$1,689	$1,718	$1,742
Total	$1,185	$1,317	$1,388	$1,415	$1,617	$1,686	$1,749

Although there is not a significant difference between the cost per person between males and females, when examined by age, there is a notable difference between costs per person by age group. Age group 0-2 is substantially less than the other age groups, which could be due to many children not being diagnosed with ASD until three years of age. Age groups 3-9 and 10-20 cost per person have consistently risen each year, however they are in close range of the overall total cost per person.

Cost per person was calculated by taking the total reimbursement and dividing it by the unduplicated number of members who received the paid services.



	2010	2011	2012	2013	2014	2015	2016
0-2	31	37	54	52	64	103	74
3-9	1,121	1,320	1,754	1,811	1,921	2,183	2,215
10-20	954	1,200	1,383	1,704	1,706	1,943	2,148



	2010	2011	2012	2013	2014	2015	2016
Psychotherapy	$900	$942	$908	$1,054	$1,389	$1,361	$1,398
OT	$1,083	$1,257	$1,305	$1,242	$1,371	$1,664	$2,081
Other	$477	$606	$669	$648	$797	$755	$706
Psychological Testing	$77	$134	$139	$173	$120	$167	$125
PT	$412	$422	$454	$632	$562	$389	$475
ST	$1,020	$1,238	$1,379	$1,356	$1,379	$1,465	$1,691
Total	$747	$842	$873	$896	$1,043	$1,070	$1,157

Psychotherapy, occupational therapy (OT) and speech therapy (ST) had the highest cost per person for all years in the reporting period. Additionally, each year of the reporting period showed an increase in these three categories except for SFY2015. Total cost per person also increased each year. On average the percent of change for overall cost per person for the reporting period was an eight percent increase. Child is defined as an individual who is 20 years of age or younger.

As mentioned earlier in this section, ODMHSAS is appropriated state matching dollars for most all of the SoonerCare Behavioral Health program. SoonerCare members are able to access any outpatient and inpatient behavioral health service covered under OHCA policy at OAC 317:30-5, Parts 6, 21, 25 and 26. ABA is not a covered behavioral health benefit.

The data in the first table shows reimbursement for behavioral health services covered by SoonerCare and ODMHSAS state share only clients with a primary diagnosis of ASD in SFY2011 – 2016. Due to claim lag, data for 2016 is not yet considered complete. ODMHSAS SFY2010 data would be included in OHCA, as ODMHSAS was not administering the SoonerCare Behavioral Health program at that time.

Individuals (age 0-20) served through SoonerCare and ODMHSAS state share*

State Fiscal Year	DistinctCts	Paid
FY11	1,265	$7,581,678.02
FY12	1,547	$9,087,532.07
FY13	1,977	$8,193,885.33
FY14	2,132	$8,153,227.52
FY15	2,453	$8,821,051.34
FY16	2,592	$6,121,951.66

**Distinct counts in the figure above include members accounted for in the previous data section.*

The data in the second table shows reimbursement for behavioral health services covered by ODMHSAS state share only (non-Title XIX) funding for clients with a primary diagnosis of ASD in SFY2011 – 2016. Due to claim lag, data for 2016 is not yet considered complete. (The members shown in the second table are a subset of the first table.)

Individuals (age 0-20) served through ODMHSAS state share only

State Fiscal Year	DistinctCts	Paid
FY11	99	$47,078.77
FY12	100	$48,892.88
FY13	124	$59,106.57
FY14	143	$81,751.93
FY15	154	$65,541.07
FY16	152	$61,748.59

Based on this information, the primary services being provided with ASD diagnosis are psychotherapy (group, individual and family) and psychosocial rehabilitation. SoonerCare defines psychotherapy as a face-to-face treatment for mental illnesses and behavioral disturbances, in which the clinician, through definitive therapeutic communication, attempts to alleviate the emotional disturbances, reverse or change maladaptive patterns of behavior and encourage growth and development. Psychotherapy is goal directed utilizing techniques appropriate to the service plan and the member's developmental and cognitive abilities.

Psychosocial Rehabilitation services are face-to-face Behavioral Health Rehabilitation services which are necessary to improve the member's ability to function in the community. They are performed to improve the skills and abilities of members to live interdependently in the community, improve self-care and social skills, and promote lifestyle change and recovery practices. Rehabilitation services may be provided individually or in group sessions, and they take the format of curriculum based education and skills training. For a more detailed descriptions of these services, including clinical restrictions, provider requirements, and service limitations, see OAC 317:30-5-241.2 and 317:30-5-241.3.

Psychotherapy and Psychosocial Rehabilitation (PSR) can be provided in a group setting. Per SoonerCare behavioral health rules for children under the age of 18, the total psychotherapy group size is limited to six individuals. For adults, group sizes are limited to eight individuals. Group sizes for PSR are 14 individuals for adults and eight individuals for children. Services such as psychotherapy, psychosocial rehabilitation, case management, and crisis intervention are provided on a one to one basis.

The level of education of the provider depends on the service being provided. Psychotherapy must be provided by a Licensed Behavioral Health Professional (LBHP) or a Licensure Candidate. Services such as Psychosocial Rehabilitation and Case Management are provided by a LBHP, Licensure Candidate or Case Manager II. Credentials for these providers are found in OAC 317:30-5-240.3

Oklahoma State Department of Health

The OSDH is ultimately responsible for protecting and improving the public's health status through strategies that focus on preventing disease through its system of local health services delivery, which includes 68 county health departments. The OSDH also advances initiatives and system changes that promote the health of Oklahomans at the state, regional, and local levels.

The OSDH provides services to children and adolescents with developmental disabilities, including ASD, primarily through two programs: SoonerStart and Child Guidance. SoonerStart, Oklahoma’s early intervention program, is mandated by federal and state law to serve children up to 36 months of age who have a developmental delay or a condition that is likely to cause a delay. Child Guidance provides services to enhance child development for children up to age 13.

SoonerStart

SoonerStart is designed to meet the needs of families with infants or toddlers with developmental delays and/or disabilities from birth to age 3. In accordance with the Individuals with Disabilities Education Act (IDEA), the program builds upon and provides supports and resources to assist family members to enhance infants' or toddlers' learning and development through every day learning opportunities.

Infants and toddlers from birth to age 3 in Oklahoma who meet the criteria of having a developmental delay are eligible for SoonerStart services. As used in the Oklahoma Early Intervention Act, [Oklahoma State Statutes Title 70, Section 13-123] "developmentally delayed" means children who:

- Exhibit a delay in their developmental age compared to their chronological age of 50 percent or score two standard deviations below the mean in one or more of the following areas or in a sub-domain of one of the areas: cognitive, physical, communication, social or emotional, or adaptive development;

- Exhibit a delay in their developmental age compared to their chronological age of 25 percent or score one and one-half standard deviations below the mean in two or more of the following areas or in a sub-domain of two or more of the following areas: cognitive, physical, communication, social or emotional, or adaptive development; or

- Have a diagnosed physical or mental condition that has been identified as having a high probability for a developmental delay.

Services are provided at no cost to eligible families through 26 sites across the state. Services may include those provided through: child development specialists, occupational therapists, physical therapists, speech language pathologists, nurses, psychological clinicians, and social workers. Services may also include deaf/hard of hearing services, vision services, nutrition services, and special education services. ASD-specific screening for all SoonerStart eligible children is conducted at 18 months.

All early intervention services are individualized with families and hours per week vary. SoonerStart services are provided in the family's natural environment, which is primarily the home or childcare setting. Interventions can be one-on-one or with multiple providers modeling interventions that can be carried over by the family. Services in SoonerStart are individualized as determined through the Individual Family Service Plan (IFSP), and there is no maximum. The OSDH is currently budgeted for 136 providers in the areas listed above. Additionally, Early Foundations (a program of SoonerStart) has four BCBA staff. OSDH also contracts with other providers as needed (see Appendix C).

Within the SoonerStart program, the OSDH utilizes the Trumpet Behavioral Health/Autism PRO, a software system that allows professionals and parents to track, analyze and share progress data. Detailed "lesson plans" are provided to instruct an Autism PRO user how to teach a variety of skills and address challenging behaviors. Providers and/or caregivers can choose between different approaches

when teaching a new skill (i.e., behavioral, developmental, etc.) There are currently 86 active cases serving children aged 18 to 36 months.

The program within SoonerStart specifically designed for children who have an ASD diagnosis is the Early Foundations program. Children are selected by the SoonerStart team. Each team keeps a pool of eligible children (i.e., children in SoonerSart who have failed the M-CHAT screener) and when an opening comes available at an Early Foundations site, the youngest children in the pool are selected. The program is completely optional for families, so if the family and provider deem it an appropriate match for the child the child is enrolled.

The *Early Foundations: Autism Model and Outreach Project* was developed in 2007 as a partnership between SoonerStart (OSDH and OSDE) and the OUHSC Department of Pediatrics, Child Study Center to provide an alternative model of service for young children at risk for ASD. The model used at Early Foundations is called Project DATA for Toddlers.[7] The model is a comprehensive treatment model that provides ABA services in the context of developmentally appropriate activities for young children. [8] Early Foundations is limited to 28 to 32 children, ages 20 to 48 months and at risk for ASD within a four county area (Oklahoma, Canadian, Cleveland, and Tulsa). Treatments are provided on a one-on-one basis and can be for up to 17 hours a week. The purpose of the pilot project is to address the need for greater intensity of services and to specifically provide behavioral teaching as a component of the program. Due to budget cuts the program has not been able to expand further.

SoonerStart is funded through an interagency contract with the OSDE, which serves as the lead agency for the contract. OSDE provides an annual report to the U.S. Department of Education on the early childhood outcomes of the program. These outcomes are reported as a total, and not by disability type.

Children who are eligible for SoonerStart are not required to have a diagnosis in order to receive services. Data collected for children receiving services through SoonerStart cannot identify or categorize children according to a specific diagnosis, including ASD. As a result, data provided in this report regarding services provided by SoonerStart, service providers, and children enrolled in SoonerCare refer to all eligible children with a developmental delay receiving services- not just children with ASD. It is not possible, at this time, to break-out the number of children being served by SoonerStart across the state who may have a delay resulting from ASD.

Child Guidance

The OSDH Child Guidance Program offers a continuum of services for children and their families to assist them in achieving optimal development. The program is uniquely positioned in public health settings to provide evidence-based programs that enhance protective factors and reduce risk factors for families. Child Guidance teams located in county health departments consist of master's degree level clinicians in

[7] Boulware, G. Schwartz, I. S., Sandall, S. R., & McBride, B. J. (2006). Project DATA for toddlers: An inclusive approach to very young children with ASD. Topics in Early Childhood Special Education, 26(2), 94-105.
[8] Boyd, B. A, Odom, S. L., Humphreys, B. P., & Sam, A. M. (2010). Infants and toddlers with autism spectrum disorder: Early identification and early intervention. Journal of Early Intervention, 32(2), 75-98.

child development, behavioral health and speech/language pathology. Through a multidisciplinary approach to service delivery, Child Guidance provides a continuum of services that supports development and parenting of children from birth to age 13. Each discipline provides a unique expertise in supporting families with young children.

Child Guidance services are available to children from birth to age 13, including their families and caregivers, by providing services that are relationship-based, family-centered, developmentally appropriate and culturally sensitive. Individual client services provided through the Child Guidance Program are provided by all three Child Guidance disciplines and include screening/assessment, intervention, consultation and prevention. Clinicians also provide Early Childhood Mental Health Consultation to childcare centers via a contract with OKDHS. Children eligible to participate in Child Guidance program are not required to have a diagnosis to receive services. The majority of services being provided are for intervention or treatment. However, screening, assessment and evaluation services account for a small portion of the Child Guidance services available.

During the period of 2010 – 2016 Child Guidance services were provided to 4,326 unduplicated clients who participated in 36,478 encounters. (Data presented in the "Child Guidance: Services Provided" chart in Appendix C for children receiving services could not separate out the number of services across the state specific to children who have been diagnosed with ASD.)

Child Guidance clinicians have been trained by the Early Access Foundation Screening Project to be a community partner providing ASD screening. Child Guidance multidisciplinary teams conduct autism screenings for young children to meet the needs of young children with autism spectrum disorders, by improving access to early screening and connection to needed services. Screening provides families who have concerns about their child's development to quickly and efficiently find out if their child is at risk for ASD and needs further assessment. Child Guidance clinicians provide screenings that address autism risk as well as general developmental health through use of appropriate screening instruments as well as providing families with resource referrals and information to help them on their way. Numbers from screenings conducted by Child Guidance may be reflected in data from Early Access Foundation Screening Project.

Child Guidance services are covered via fee-for-service Medicaid-EPSDT or fees paid by the parent that are based on sliding scale, according to income and the number of family members.

Oklahoma State Department of Education

The Oklahoma State Department of Education (OSDE) is the state education agency charged with determining the policies and directing the administration and supervision of the public school systems in Oklahoma. The State Board of Education, the governing body of OSDE, is composed of the State Superintendent of Public Instruction and six members appointed by the Governor (with approval from

the Oklahoma State Senate). The agency has an annual budget of more than $3 billion and serves 548 school districts.

The information included in this section is comprehensive to what the OSDE can provide to students in the public school system. However, those services, the costs, and interventions differ greatly from how ASD treatment is provided through Oklahoma's public health agencies. Funds are allocated to local school districts to provide services to students. The OSDE Special Education Services (OSDE-SES) division implements the Individuals with Disabilities Education Act (IDEA), Parts B and C. The IDEA is a federal law that supports special education and related service programming for children and youth with disabilities birth through age 21. The major purposes of the IDEA are: to ensure that all children with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for employment and independent living, to ensure that the rights of children and youth with disabilities and their parents are protected, and to assess and ensure the effectiveness of efforts to educate children with disabilities.

SoonerStart is Oklahoma's IDEA Part C early intervention program for infants and toddlers with disabilities. Part C of the IDEA is a federal grant program, established in 1986 that assists in operating a comprehensive statewide program of early intervention services for infants and toddlers with disabilities, birth to age 3. The program is a joint effort of state agencies including the OSDE (lead agency) and the OSDH. The SoonerStart program provides individualized services based on the child and family's unique needs. As previously mentioned, ASD specific services and partnerships for this program include the University of Oklahoma Health Science Center Early Foundations, Autism Pro, and related services.

The IDEA Part B, Sections 611 and 619 formula grant programs assist states in providing a free appropriate public education (FAPE) in the least restrictive environment for students with disabilities ages 3 through 21. OSDE-SES provides guidance and policy for the implementation of the IDEA at the local level, monitors districts to provide oversight for implementation, provides for the excess cost of special education and related services for students with disabilities, ensures fiscal accountability in the distribution and use of the IDEA funds, collects and reports data to the United States Department of Education, Office of Special Education Programs (OSEP), and provides technical assistance and professional development to local school districts.

Local districts are responsible for providing FAPE to children with ASD who are eligible for special education and related services. The OSDE-SES monitors the provision of FAPE for all students with disabilities on an Individualized Education Program (IEP). Services for students with disabilities are determined by the IEP team, which includes school staff and parents.

Although direct services are not provided by the OSDE-SES, IDEA funding is used to support these students through state-wide contracts. Two current contracts directly support students with ASD. The OSDE-SES contracts with the Oklahoma Autism Center (OAC) (which includes Early Foundations, MESA Project and the Early Access Autism Screening Project) as part of the programs offered by the Child Study Center (CSC) at the OU Health Sciences Center, Department of Pediatrics. Early Foundations

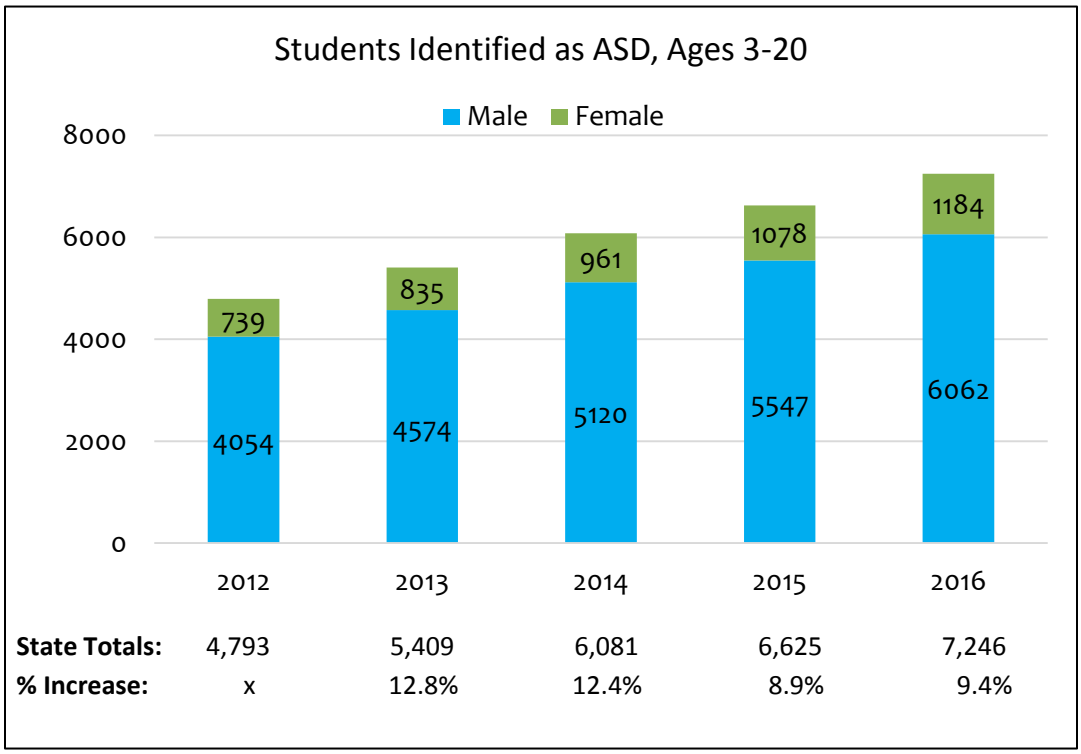
model sites provide exceptional services to students with ASD and are great resources for teachers across the state, including Sooner Start staff. MESA Project formerly Project PEAK, is a widely known quality training that is offered throughout the State. The OSDE-SES division has contracted with the OAC in previous years. However, in the past two years funding was decreased and split between IDEA B funds and the State Competitive Grant Pool. This year, the OSDE-SES division has restored previous levels of funding ($649,737) through the IDEA Part B to enhance services for students with ASD and provide on-site and hands-on training to schools.

The OSDE-SES division also contracts with Good Shepherd Catholic School to support the Outreach and Support Intervention Services (OASIS) model, which emphasizes conceptual and practical understanding of behavior as foundational skills. The OSDE was recently awarded $300,000 for Good Shepherd Catholic School at Mercy, an Oklahoma City-based school for children with ASD that serves as a University of Central Oklahoma model and demonstration site using students in the Board Certified Behavior Analysis (BCBA) program. The contract provides training and coaching for educators, administrators and parents at designated rural and urban schools in Oklahoma. The training focuses on increasing awareness of challenging behaviors, including ASD and supports, providing on-site technical assistance and coaching to educators, providing professional development in the use of evidence-based practices, providing referrals and support to families regarding resources and agencies, and the development of model sites.

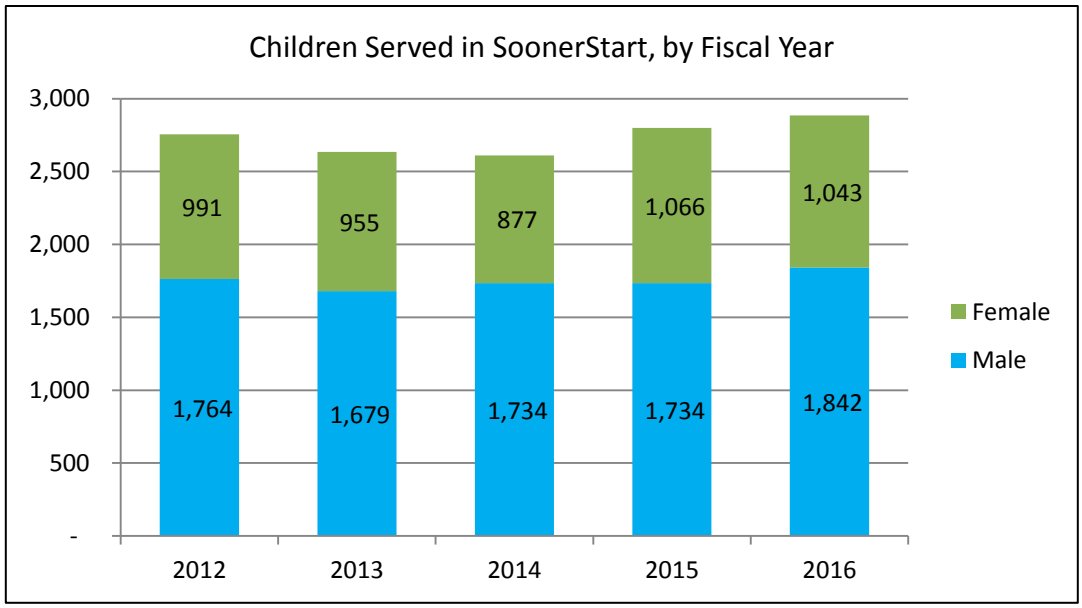
The OSDE-SES division also contracts with ABLE Tech at Oklahoma State University to provide assistive technology (AT) services for students served under IDEA Part B (pre-K-12) and infants and toddlers under IDEA Part C (birth to age 3). ABLE Tech also provides professional development and technical assistance to local school districts. The current year contract is for $500,319. This contract supports all students with disabilities.

OSDE-SES programs support children with developmental delays including but not limited to ASD. Due to the unique nature of services provided within the OSDE system, tracking specific costs related to ASD is not available.

OSDE Data (SFY 2012 – 2016)



	2012	2013	2014	2015	2016
State Totals:	4,793	5,409	6,081	6,625	7,246
% Increase:	x	12.8%	12.4%	8.9%	9.4%



SoonerStart serves children ages 0 through 2.

Oklahoma Department of Human Services

Although DHS was not listed as a partnering agency in the new law, OHCA requested its involvement during the interagency working group meetings to ensure adequate information on service providers was included.

DHS provides a wide range of assistance programs to help Oklahomans in need including: food benefits; temporary cash assistance; services for persons with developmental disabilities and persons who are aging; adult protective services; child welfare programs; child support services; and child care assistance, licensing and monitoring. DHS also handles applications and eligibility for SoonerCare members who are aged, blind or disabled.

The Developmental Disabilities Services (DDS) database shows 506 active members with a diagnosis of ASD as of Dec. 1, 2016. DDS serves persons ages 3 through adulthood that have a primary diagnosis of intellectual disability. Services are provided primarily through four Medicaid Home and Community-Based Waivers. Persons served may also have other developmental disabilities such as an intellectual disability and cerebral palsy in addition to ASD. Children are required to access therapies through EPSDT services before such services can be provided through one of the Medicaid waivers.

The primary waiver services for members with ASD provided through DDS are psychological services and family training services. ABA is not a specific DDS waiver service, although there are some service providers incorporating the principles into the services provided.

The majority of direct therapy by a psychologist/family trainer focuses on specific behavioral challenges such as aggression, self-harm and property destruction. Services provide assessment, plan development and staff training as well as limited, one-on-one interventions with the individual and his or her family/caregivers. Waiver psychological services also allow for group therapy with a six-client maximum to one clinician. Waiver family training, similar to psychological services, allows for both individual and group services. Group family training allows for a range of two to 15 members per group including provider staff and one provider.

It is difficult to determine how many hours a day/week the member is receiving treatment. Services are individually prescribed and based on the person's needs. A yearly unit amount is authorized and put on the individual's Plan of Care. Units are used for training caregivers, plan writing, and attending team meetings, as well as one-on-one therapy or counseling and group work. The plan of care authorization does not differentiate how the units are used.

Psychological services billed cannot exceed 72 hours (288 15-minute units at $20.73 per individual therapy unit and $10.37 per group therapy unit) for individual and group services combined in a plan year without approval by the DDS Director of Psychological Services.

Individual Family Training services for an individual cannot exceed $5,500 in a plan year. In addition, Group Family Training services cannot exceed $5,500 in a plan year. Family training rates are

individually established based on the provider's submitted and approved application, including curricula and rate request, so there is no standard number of units per year.

A small number of clients are getting direct therapy from a professional more than one or two times per month. Some group therapy may meet weekly. Generally, counseling and education are the focus of this individual and group therapy. DHS promotes training of caregivers as a cost savings and to maximize consistency and intensity, rather than more direct, professional therapy. The unit and monetary service caps established through the waivers for Psychological and Family Training Services would not support a significant amount of direct, one-on-one therapy by a professional.

DDS Waiver Data (SFY 2012 – 2016)

State Fiscal Year	# of individuals with ASD receiving waiver services	# receiving psychological services	# receiving family training services
FY12	472	137	115
FY13	501	154	117
FY14	523	159	124
FY15	524	171	126
FY16	514	215	121

Federal Guidance

The federal government, through the Centers for Medicare & Medicaid Services (CMS), establishes the general rules for state Medicaid programs. The OHCA, ODMHSAS, OSDH, and DHS are required to follow any federal regulations issued by the CMS.

The U.S. Department of Education, through the IDEA, governs state education programs, which OSDE administers in Oklahoma.

On July 7, 2014, CMS issued a "Clarification of Medicaid Coverage of Services to Children with Autism" bulletin, and followed that with a Frequently Asked Questions bulletin on Sept. 24, 2014, to further explain the previous guidance bulletin. The information provided to state Medicaid programs reiterated the inclusion of services under the EPSDT benefit, but clarified that states are not required to provide particular services for members with ASD. (See Appendix D for CMS bulletin and FAQ.)

From the CMS FAQ dated Sept. 24, 2014:

> *"Q: Has CMS mandated Applied Behavior Analysis (ABA) services for children under 21 with Autism Spectrum Disorder (ASD)?*

A: No. Applied Behavior Analysis (ABA) is one treatment modality for ASD. CMS is not endorsing or requiring any particular treatment modality for ASD. State Medicaid agencies are responsible for determining what services are medically necessary for eligible individuals. States are expected to adhere to long-standing EPSDT obligations for individuals from birth to age 21, including providing medically necessary services available for the treatment of ASD."

CMS requires that state Medicaid agencies determine what services are medically necessary for eligible members birth through age 20, including individuals with ASD. States cannot deny those services based solely on an ASD diagnosis or type of ASD service, such as ABA. The inclusion of ABA treatment for ASD within a Medicaid program has been left to the discretion of individual states.

Evidence-Based Analysis

ABA is defined as an umbrella term describing principles and techniques used in the assessment, treatment and prevention of challenging behaviors and the promotion of new desired behaviors. The goal of ABA is to teach new skills, promote generalization of these skills, and reduce challenging behaviors with systematic reinforcement. The principles and techniques of ABA existed for decades prior to specific application and study within ASD, and are not specific to the treatment for a patient with an ASD diagnosis.

Early Intensive Behavioral Intervention (EIBI) is based on ABA principles, is more individualized one-on-one treatment, usually started with children of young ages, (3-4 years of age) and, as the name implies, is highly intensive. The interventions are performed multiple hours each week, up to 40 hours weekly.

Evidence-based practice is defined as the practice of health care in which the practitioner systematically finds, appraises, and uses the most current and valid research findings as the basis for clinical decisions. The term is sometimes used to denote evidence-based medicine specifically but can also include other specialties, such as evidence-based nursing, pharmacy, and dentistry. [9] There are multiple methods of performing research to ascertain information to support clinical decision making. Those include the following:

- **Case series and case reports** consist of collections of reports on the treatment of individual patients or a report on a single patient. Because they are reports of cases and use no control groups to compare outcomes, they have little statistical validity.
- **Case control studies** are studies in which patients who already have a specific condition are compared with people who do not have the condition. The researcher looks back to identify factors or exposures that might be associated with the illness. They often rely on medical records and patient recall for data collection. These types of studies are often less reliable than

[9] Mosby's Medical Dictionary, 8th edition. (2009). Retrieved Dec. 8, 2016 from http://medical-dictionary.thefreedictionary.com/evidence-based+practice

randomized controlled trials and cohort studies because showing a statistical relationship does not mean than one factor necessarily caused the other.

- **Cohort studies** identify a group of patients who are already taking a particular treatment or have an exposure, follow them forward over time, and then compare their outcomes with a similar group that has not been affected by the treatment or exposure being studied. Cohort studies are observational and not as reliable as randomized controlled studies, since the two groups may differ in ways other than in the variable under study.
- **Randomized controlled clinical trials** are carefully planned experiments that introduce a treatment or exposure to study its effect on real patients. They include methodologies that reduce the potential for bias (randomization and blinding) and that allow for comparison between intervention groups and control (no intervention) groups. A randomized controlled trial is a planned experiment and can provide sound evidence of cause and effect.
- **Systematic Reviews** focus on a clinical topic and answer a specific question. An extensive literature search is conducted to identify studies with sound methodology. The studies are reviewed, assessed for quality, and the results summarized according to the predetermined criteria of the review question.
- **Meta-analysis** will thoroughly examine a number of valid studies on a topic and mathematically combine the results using accepted statistical methodology to report the results as if it were one large study.
- **Cross-sectional studies** describe the relationship between diseases and other factors at one point in time in a defined population. Cross-sectional studies lack any information on timing of exposure and outcome relationships and include only prevalent cases. They are often used for comparing diagnostic tests. Studies that show the efficacy of a diagnostic test are also called prospective, blind comparison to a gold standard study. This is a controlled trial that looks at patients with varying degrees of an illness and administers both diagnostic tests — the test under investigation and the "gold standard" test — to all of the patients in the study group. The sensitivity and specificity of the new test are compared to that of the gold standard to determine potential usefulness.
- **Qualitative research** answers a wide variety of questions related to human responses to actual or potential health problems. The purpose of qualitative research is to describe, explore and explain the health-related phenomena being studied.
- **Retrospective cohort (or historical cohort)** follows the same direction of inquiry as a cohort study. Subjects begin with the presence or absence of an exposure or risk factor and are followed until the outcome of interest is observed. However, this study design uses information that has been collected in the past and kept in files or databases. Patients are identified for exposure or non-exposures and the data is followed forward to an effect or outcome of interest.[10]

[10] Introduction to Evidence-Based Practice: Type of Study (Nov 22, 2016); http://guides.mclibrary.duke.edu/c.php?g=158201&p=1036068

Research indicates ABA interventions may be applied and show some improvement on some patients, yet a different patient, with the same degree and diagnosis of ASD, IQ, etc., will receive the same intervention with little improvement. Most studies related to ABA interventions are small, with fewer than 100 persons in the study and have varied results, perhaps due to the nature of ASD. What the studies do indicate is the earlier the diagnosis and the earlier the treatment is initiated, the higher probability of success. The success is highly dependent on the individual and may not work for all persons with ASD. Based on the research, not all persons with ASD are likely to have improvement with ABA interventions, but the treatment that is initiated must be individualized and unique to each person.

The reviews included in this section are focused to the most recent research and guidelines, specific to ABA interventions and outcomes.

Below are exact excerpts from national guidelines and multiple studies with the abstract citations. A full citation list for the articles, studies and guidelines reviewed is available in Appendix E.

Excerpts from National Guidelines

Extracted from the National Guideline Clearinghouse, Agency for Healthcare Research and Quality (AHRQ) Guideline Summary NGC:010489 1999 Jun 27 (revised Feb. 2014)

> **Practice parameter for the assessment and treatment of children and adolescents with autism spectrum disorder; Recommendation 4.** *The clinician should help the family obtain appropriate, evidence-based, and structured educational and behavioral interventions for children with ASD*
>
> Structured educational and behavioral interventions have been shown to be effective for many children with ASD and are associated with better outcome. As summarized in the National Research Council report, ***the quality of the research literature in this area is variable***, ***with most studies using group controls or single-subject experimental methods. In general, studies using more rigorous randomized group comparisons are sparse, reflecting difficulties in random assignment and control comparisons.*** Other problems include lack of attention to subject characterization, generalization of treatment effects, and fidelity of treatment implementation. Despite these problems, various comprehensive treatments approaches have been shown to have efficacy for groups of children, although none of the comprehensive treatment models has clearly emerged as superior.
>
> Behavioral interventions such as Applied Behavioral Analysis (ABA) are informed by basic and empirically supported learning principles. A widely disseminated comprehensive ABA program is Early Intensive Behavioral Intervention for young children, based on the work of Lovaas et al., 1981. Early Intensive Behavioral Intervention is intensive and highly individualized, with up to 40 hours per week of one-to-one direct teaching, initially using discrete trials to teach simple skills and progressing to more complex skills such as initiating verbal behavior. ***A meta-analysis found Early Intensive Behavioral Intervention effective for young children but stressed the need for***

more rigorous research to extend the findings. Behavioral techniques are particularly useful when maladaptive behaviors interfere with the provision of a comprehensive intervention program. In such situations, a functional analysis of the target behavior is performed, in which patterns of reinforcement are identified and then various behavioral techniques are used to promote a desired behavioral alternative. ABA techniques have been repeatedly shown to have efficacy for specific problem behaviors, and ABA has been found to be effective as applied to academic tasks, adaptive living skills, communication, social skills, and vocational skills. Because most children with ASD tend to learn tasks in isolation, an explicit focus on generalization is important.

Extracted from AHRQ, Executive Summary – (Aug. 6, 2014), **Therapies for Children With Autism Spectrum Disorder: Behavioral Interventions Update**

Studies of Early Intensive Behavioral and Developmental Interventions

We identified 2,639 newly published citations and abstracts. We excluded 2,012 studies at abstract review and assessed the full text of 627 studies. Of these, 79 publications, comprising 65 unique studies, met our criteria. Eight of these studies report follow-up data to papers included in the 2011 review of therapies for children with ASD. The 65 new studies described in this update to add to the conclusions of the original report comprise 48 randomized controlled trials (RCTs) and 17 nonrandomized trials or cohort studies. We located 37 papers comprising 25 unique studies addressing early intensive behavioral and developmental interventions. The studies included five RCTs of good quality, six of fair quality, and one of poor quality. Improvements were most often seen in cognitive abilities and language acquisition, with less robust and consistent improvements seen in adaptive skills, core ASD symptom severity, and social functioning. ***Young children receiving high-intensity applied behavior analysis (ABA)-based interventions over extended timeframes (i.e., 8 months–2 years) displayed improvement in cognitive functioning and language skills relative to community controls. However, the magnitude of these effects varied across studies***. This variation may reflect subgroups showing differential responses to particular interventions. Intervention response is likely moderated by both treatment and child factors, but exactly how these moderators function is not clear. ***Despite multiple studies of early intensive treatments, intervention approaches still vary substantially, which makes it difficult to tease apart what these unique treatment and child factors may be. Further, the long-term impact of these early skill improvements is not yet clear, and many studies did not follow children beyond late preschool or early school years.***

Studies of high-intensity early intervention services also demonstrated improvements in children's early adaptive behavior skills, but these improvements were more variable than those found for early cognitive and language skills. Treatment effects were not consistently maintained over follow-up assessments across studies. Many studies measured different adaptive behavior domains (creating within-scale variability), and some evidence suggests that adaptive behavior changes may be contingent on baseline child characteristics, such as cognitive/language skills and ASD severity.

Evidence for the impact of early intensive intervention on core ASD symptoms is limited and mixed. Children's symptom severity often decreased during treatment, but these improvements often did not differ from those of children in control groups. Better quality studies reported positive effects of intervention on symptom severity, but multiple lower quality studies did not. Since our previous review, there have been substantially more studies of well-controlled low-intensity interventions that provide parent training in bolstering social communication skills. Although parent training programs modified parenting behaviors during interactions, data were more limited about their ability to improve broad developmental skills (such as cognition, adaptive behavior, and ASD symptom severity) beyond language gains for some children. ***Children receiving low-intensity interventions have not demonstrated the same substantial gains in cognitive skills seen in the early intensive intervention paradigms.***

Extracted from National Institute for Health and Care Excellence, (NICE) – (June 2016) **Assessment, diagnosis and interventions for autism spectrum disorders, a national clinical guideline:**

Early intensive behavioral intervention (EIBI) programs aim to engage the child with ASD in a structured learning program that is highly individualized, taking into account the idiosyncratic motivations and specific metacognitive and learning needs of each child. Although programs vary widely in the emphasis given to different skills (verbal behaviors, pivotal responses, play, joint attention, etc.) they tend to start with very basic skills (sitting, looking, listening) and over time work towards more complex metacognitive skills such as self-monitoring or theory of mind. EIBI programs involve varying levels of parental involvement. Generalization of skills from prompted to spontaneous use is a key element. EIBI programs attempt to address a comprehensive range of behaviors associated with ASD, rather than focusing on one specific aspect such as communication, social skills or interaction. Given that ASD is a pervasive condition, these comprehensive programs are necessarily intensive. They vary considerably in terms of technologies and emphasis but are all based on applied behavior analysis (ABA). Programs have evolved considerably since early models such as the University of California, Los Angeles (UCLA) project, and reviews of comprehensive, ABA-based and intensive programs increasingly include developmental programs such as the Learning Experiences and Alternative Program for Preschoolers and their parents (LEAP) and the Early Start Denver Model (ESDM). EIBI programs are manualized, intensive and target a comprehensive range of skills for training, practice and generalization. It is important to distinguish ABA, which has a wide range of applications at varying intensities, from EIBI, which is one application of ABA. EIBI programs should not be referred to as 'ABA for autism', as this is not an accurate label. Modern EIBI programs are best described as behavioral and developmental programs. ***Programs usually start when the child with ASD is three or four, with some reviewed studies starting at 18 months***. They aim to build the prerequisite learning skills required to be ready for starting primary school. EIBI therefore describes comprehensive teaching programs, rather than interventions that aim to reduce symptoms. While such ABA principles have been applied widely in community, hospital and educational settings for many years to address deficits and delays in learning resulting from a wide range of neurological conditions, they are not typically comprehensive or high intensity. Early models of EIBI for children with ASD typically required up

to 30 or more hours per week, but more recent reviews include programs ranging from 13–28 hours per week. A number of more specific ABA-based interventions are also available (for example PECS) which do not require the same level of intensity. Ten well-conducted systematic reviews assessed the quality of trials on EIBI as low to moderate due to the complexities of conducting long-term studies in this area. Early intervention based on high-intensity behavior analysis over extended timeframes, whether delivered by parents or clinicians, was associated with improvement in cognitive functioning, language skills, adaptive behavior, including social competence and daily living skills relative to community controls in some groups of young children. Not all improvements were maintained at long-term follow up. Only one systematic review concluded there was no impact. This may be due to the inclusion of a study which compared high-intensity clinic-based ABA with high intensity parent-delivered ABA. Both programs produced positive impact but the difference was not significant, diluting the gains found in the other included studies, and invalidating the author's conclusions. The reviews show a steady improvement in study quality over time, although there are problems with small sample sizes, non-randomization and partial blinding. While these are relevant to any research in this area, they constitute biases that make it possible that the conclusions may change in the light of further evidence. EIBI, based on the principles of ABA delivered with an intensive (>15 hours per week) and comprehensive (i.e. addressing numerous areas of functioning) approach can positively affect some children with ASD. ***A Cochrane review concluded that while EIBI cannot be recommended universally it should be considered on a case-by-case basis.*** There were no clear predictors identifying which children will respond or not, and while intensity or total hours were moderately correlated with some outcomes, such correlations were not always significant. While it has been shown that EIBI is superior to no intervention or treatment as usual, the evidence does not warrant the provision of universal EIBI. It does however justify rigorous cost-effectiveness research, which currently is of poor quality and does not support wide application of this approach. EIBI may not be cost effective when considered on the level of an individual early years' service, but the cost effectiveness of it may change when considered on a societal level.

EXCERPTS FROM PROFESSIONAL JOURNALS

The excerpts included below are limited to queries specific to ABA within the timeframe 2014 – 2016 (approximately). External organizations provided some cited studies that fall outside of this timeframe. However, the inclusion of those citations in this report was vital, in order to ensure historical perspective and relevant context.

Erik Linstead, Dennis R. Dixon, Ryan French, Doreen Granpeesheh, Hilary Adams, Rene German, Alva Powell, Elizabeth Stevens, Jonathan Tarbox, Julie Kornack. (Sept. 20, 2016**) Intensity and Learning Outcomes in the Treatment of Children With Autism Spectrum Disorder, Behavior Modifications.** ***Chapman University, Orange, CA, USA; Center for Autism and Related Disorders, Woodland Hills, CA, USA; Louisiana State University, Baton Rouge, USA.***

Ample research has shown that intensive applied behavior analysis (ABA) treatment produces robust outcomes for individuals with autism spectrum disorder (ASD); however, little is known about the relationship between treatment intensity and treatment outcomes. The current study was designed to evaluate this relationship. ***Participants included 726 children, ages 1.5 to 12 years old, receiving community-based behavioral intervention services. Results indicated a strong relationship between treatment intensity and mastery of learning objectives, where higher treatment intensity predicted greater progress.*** Specifically, 35% of the variance in mastery of learning objectives was accounted for by treatment hours using standard linear regression, and 60% of variance was accounted for using artificial neural networks. These results add to the existing support for higher intensity treatment for children with ASD. These results show a clear relationship between treatment intensity and mastery of learning objectives in the context of behavioral intervention for children with ASD in a community-based clinical setting, regardless of the age of the child receiving the service. This study builds upon the findings of Granpeesheh and colleagues (2009) in several important directions. One of the limitations noted by Granpeesheh and colleagues (2009) was the non-standardized nature of using mastered learning objectives. A standardized assessment and treatment-tracking tool (Skills™), which has been shown to have strong reliability (Dixon et al., 2011) and validity (Persicke et al., 2014), was used to ensure that all participants were measured according to the same criteria in a valid and reliable manner. While there is still inherent variability in difficulty to master one objective from another, the impact of this is likely mitigated by the large sample size. ***It is also worth noting that the current study found a clear relationship between treatment hours and mastery of learning objectives across a sample that included a substantial portion of older children (mean age of 7.1 years).*** As discussed in the introduction, previous research on treatment intensity has focused on young children with ASD. This study is among the first to evaluate the effects of treatment intensity on mastery of learning objectives in older children with ASD. ***Although further research on treatment intensity in older children with ASD is still needed***, the current results suggest that the common assumption that intensive treatment is only appropriate for young children may not be true***.*** Multiple factors are involved in a child's response to treatment, and one consistent finding across EIBI outcome studies is a high degree of variability among participants in treatment response.

Jonathan W. Ivy & Kimberly A. Schreck. (2016) The Efficacy of ABA for Individuals with Autism Across the Lifespan. *Current Developmental Disorder Reports. 3:57–66 DOI 10.1007/s40474-016-0070-1.*

The use of applied behavior analysis (ABA) across the lifespan for individuals with autism spectrum disorders (ASD) evolves as young children mature to adolescents and then to adults. In childhood, instruction of comprehensive skill repertoires in combined treatment packages (e.g., early intensive behavioral intervention) in conjunction with instruction of individual functional skills related to communication, social skill interactions, and adaptive behavior create a comprehensive program. As children mature to adolescents and adults, instruction focuses more on individual functional skills related to adaptive behavior (e.g., vocational, personal/domestic, community, and leisure). Both combined treatment packages and individual functional skill instruction for children and adolescents rely upon the research-supported

operant principles and procedures of ABA. Thus, ***ABA can be considered an efficacious treatment option for individuals with ASD across the lifespan if used with fidelity to the application of ABA principles.***

For young children, adolescents, and adults with ASD, operant principles and procedures provide research-supported treatment options for teaching individual functional skills and comprehensive skill repertoires. As children mature into adolescents and adults, the instruction of specific functional skills may evolve, but the operant procedures used to teach the skills typically do not. The application of ABA for these individuals with ASD can be supported along two levels. First, an instructional program explicitly designed from basic operant principles (e.g., reinforcement) could be considered conceptually efficacious. Second, a program derived from specific evidence-based operant procedures (e.g., most-least prompting, task analysis, and token economies) and comprehensive treatment packages (e.g., early intensive behavioral intervention) can be considered research-supported. Readers are cautioned that the examples of skill instruction with accompanying operant principles and procedures discussed in this manuscript must be interpreted and applied carefully. We do not suggest that using only one operant principle or procedure (e.g., prompting alone) will result in acquisition of the example skills mentioned in this paper. Typically, combinations of operant principles and procedures must be used for meaningful learning to occur. Although many of the programs frequently used by behavior analysts maintain both conceptual and empirical support for individuals with ASD across the lifespan, trained behavior analysts must apply these principles and procedures with fidelity to the standards of the discipline.

Tristram Smith & Suzannah Iadarola. (2015) Evidence Base Update for Autism Spectrum Disorder. ***Journal of Clinical Child & Adolescent Psychology, 44:6, 897-922.***

This evidence base update examines the level of empirical support for interventions for children with autism spectrum disorder (ASD) ***younger than 5 years old***. It focuses on research published since a previous review in this journal (Rogers & Vismara, 2008). We identified psychological or behavioral interventions that had been manualized and evaluated in either (a) experimental or quasi-experimental group studies or (b) systematic reviews of single-subject studies. We extracted data from all studies that met these criteria and were published after the previous review. Interventions were categorized across two dimensions. First, primary theoretical principles included applied behavior analysis (ABA), developmental social-pragmatic (DSP), or both. Second, practice elements included scope (comprehensive or focused), modality (individual intervention with the child, parent training, or classrooms), and intervention targets (e.g., spoken language or alternative and augmentative communication). We classified two interventions as well-established (individual, comprehensive ABA and teacher-implemented, focused ABA þ DSP), 3 as probably efficacious (individual, focused ABA for augmentative and alternative communication; individual, focused ABA þ DSP; and focused DSP parent training), and 5 as possibly efficacious (individual, comprehensive ABA þ DSP; comprehensive ABA classrooms; focused ABA for spoken communication; focused ABA parent training; and teacher-implemented, focused DSP). ***The evidence base for ASD interventions has grown substantially since 2008. An increasing number of interventions have some empirical support; others are***

emerging as potentially efficacious. Priorities for future research include improving outcome measures, developing interventions for understudied ASD symptoms (e.g., repetitive behaviors), pinpointing mechanisms of action in interventions, and adapting interventions for implementation with fidelity by community providers.

Although investigators have made a concerted and largely successful effort to carry out controlled group studies, much uncertainty remains about outcome measurement and about criteria for appraising studies in systematic reviews. Regarding measurement, many studies have met JCCAP's criteria of incorporating ''reliable and valid outcome assessment measures gauging the problems targeted''. However, investigators use a broad range of measures to evaluate associated and defining features of ASD, ranging from discrete social communication skills (e.g., joint attention, eye contact, play) to global, standardized outcome measures (e.g., IQ, adaptive behavior). ***Even within families of treatments that employ similar methods, investigators lack consensus on which measures to use. The variation in measures across studies makes it difficult to compare findings.*** Moreover, studies of individual, comprehensive ABA have given priority to changes in associated features of ASD (delays in cognitive and adaptive skills), rather than primary ASD symptoms. Studies on DSP treatments have emphasized changes in laboratory. Observations of individual ASD symptoms (especially in the area of social communication), but these measures have uncertain relevance to everyday functioning. Across many treatment families, a few investigators have administered ASD diagnostic tools as outcome measures, but such tools were not intended to be used for this purpose and may not be sensitive to change. ***Unfortunately, a practical, ecologically valid measure of change in ASD symptoms does not yet exist. There are currently no published, observational measures designed to detect such change in preschool children, although some measures are currently under development (Lord, Carr, & Grzadzinaski, 2013).*** One study incorporated a neurological measure of change (electroencephalogram recordings of children's responses to faces; Dawson et al., 2012), but no other studies have done so. Although brief symptom checklists have been created to monitor response to treatment in disorders such as attention-deficit=hyperactivity disorder, oppositional-defiant disorder, anxiety, and depression, no checklists of this kind are available for ASD. Longer rating scales have been devised (e.g., Cohen, Schmidt-Lackner, Romanczyk, & Sudhalter, 2003) but were not given in any of the studies listed. Thus, the need to identify appropriate outcome measures, particularly for ASD symptoms, is acute. Regarding methods criteria, beyond taking divergent stances on the role of single-subject studies and manuals (described in the Method for the Current Review section), investigators have also applied varying criteria to evaluate group studies and combine evidence across studies. For example, although JCCAP requires randomized studies to classify a treatment as well-established, other systems go further and require a clear description of how randomization was accomplished and how the allocation sequence was concealed from the investigators (Warren et al., 2011). In addition, JCCAP requires that ''sample size was sufficient to detect expected effects'', but other systems rate the precision with which effect size can be determined (Maglione et al., 2012). In contrast to the focus in JCCAP's criteria on the number of well-designed studies that support an intervention, other systems rate the consistency of

evidence across studies (Warren et al., 2011). Depending on how stringently these criteria are applied, treatments that are classified as well-established in this review have been rated as having low to moderate levels of evidence in some other reviews (Maglione et al., 2012; Reichow et al., 2012; Weitlauf et al., 2014). Conversely, for several intervention approaches (e.g., parent training for problem behavior, incidental teaching), preliminary support in RCTs extends long-standing findings from single subject research. Alternative review systems that allow single-subject research to support a ''well-established'' classification may depict the evidence base for some of these intervention approaches as stronger than it appears here. ***The limited information on randomization protocols in some studies reflects the absence of a standard in the ASD intervention literature*** for transparent reporting of study procedures, such as the Consolidated Standards of Reporting Trials (CONSORT) Statement for RCTs (Moher et al., 2010) and the Transparent Reporting of Evaluations with Nonrandomized Trials (TREND) Statement for quasi-experimental studies (Fuller, Pearson, Peters, & Anderson, 2012). At present, specialized journals for research on ASD or other intellectual disabilities do not instruct authors to follow such standards, nor do many other journals that commonly publish ASD intervention research. We do not believe that the extent to which reports adhered to these standards would have influenced the evidence ratings in the current review. However, ''transparent reporting'' should be considered in both funding and publication as well as in rating individual studies, and it may be advisable for ASD journals to consider requiring authors to follow standard reporting guidelines. Appraisal of the precision of effect size estimates and consistency of findings across studies may facilitate moving beyond identifying treatments as well established toward gauging their potential utility in practice. The magnitude and clinical relevance of effects also would be important to assess. Because of the small sample sizes in many studies and the wide range of outcome measures used, effect size estimates remain somewhat imprecise even for well-established treatments. Also, as previously discussed, limitations in the measures reduce the clinical relevance of findings. Inconsistent findings across studies are also a prominent issue, particularly in research on classroom ABA and DSP parent training. Some approaches to conducting systematic reviews allow for assigning separate ratings to the quality of evidence and the strength of clinical recommendations that can be derived from the evidence (e.g., Grading of Recommendations Assessment, Development and Evaluation; Guyatt et al., 2008). It may be beneficial to adapt such a system for use in reviewing ASD intervention studies, particularly as research in this area grows more sophisticated.

Mohammadzaheri F, Koegel LK, Rezaei M, Bakhshi E. (Sept. 2015) A Randomized Clinical Trial Comparison Between Pivotal Response Treatment (PRT) and Adult-Driven Applied Behavior Analysis (ABA) Intervention on Disruptive Behaviors in Public School Children with Autism. ***Journal Autism Developmental Disorders; 45(9):2899-907. doi: 10.1007/s10803-015-2451-4.***

Children with autism often demonstrate disruptive behaviors during demanding teaching tasks. Language intervention can be particularly difficult as it involves social and communicative areas, which are challenging for this population. The purpose of this study was to compare two intervention conditions, a naturalistic approach, Pivotal Response Treatment (PRT) with an adult-directed ABA approach on disruptive behavior during language intervention in the public

schools. A randomized clinical trial design was used with two groups of children, matched according to age, sex and mean length of utterance. ***The data showed that the children demonstrated significantly lower levels of disruptive behavior during the PRT condition***. The results are discussed with respect to antecedent manipulations that may be helpful in reducing disruptive behavior.

The question we asked in this study was whether PRT or adult-directed ABA would result in lower levels of disruptive behavior during intervention for communication using a randomized clinical trial design. Overall, the results of this study and our previous study, using the same data set***, showed that the children who participated in the PRT condition demonstrated greater gains in the targeted area (MLU) and in non-targeted verbal interaction, pragmatics, social relationships, and nonverbal skills, as well as showing greater decreases in disruptive behavior than the adult-directed ABA condition***. These results are consistent with previous single case experimental design studies showing that when motivational components are included into the intervention disruptive behaviors are lower and targeted gains are greater (Koegel, Koegel, & Surratt, 1992; Koegel, Singh, & Koegel, 2010).

Bearss K, Johnson C, Smith T, Lecavalier L, Swiezy N, Aman M, McAdam DB, Butter E, Stillitano C, Minshawi N, Sukhodolsky DG, Mruzek DW, Turner K, Neal T5, Hallett V, Mulick JA, Green B, Handen B, Deng Y, Dziura J, Scahill L. (April 21, 2015) Effect of parent training vs parent education on behavioral problems in children with autism spectrum disorder: a randomized clinical trial. ***Journal of American Medical Association; 313(15):1524-33. doi:10.1001/jama.2015.3150.***

IMPORTANCE: Disruptive behavior is common in children with autism spectrum disorder. Behavioral interventions are used to treat disruptive behavior but have not been evaluated in large-scale randomized trials. **OBJECTIVE:** To evaluate the efficacy of parent training for children with autism spectrum disorder and disruptive behavior. **DESIGN, SETTING, AND PARTICIPANTS:** This 24-week randomized trial compared parent training (n = 89) to parent education (n = 91) at 6 centers (Emory University, Indiana University, Ohio State University, University of Pittsburgh, University of Rochester, Yale University). We screened 267 children; 180 children (aged 3-7 years) with autism spectrum disorder and disruptive behaviors were randomly assigned (86% white, 88% male) between September 2010 and February 2014. **INTERVENTIONS:** Parent training (11 core, 2 optional sessions; 2 telephone boosters; 2 home visits) provided specific strategies to manage disruptive behavior. Parent education (12 core sessions, 1 home visit) provided information about autism but no behavior management strategies. **MAIN OUTCOMES AND MEASURES:** Parents rated disruptive behavior and noncompliance on co-primary outcomes: the Aberrant Behavior Checklist-Irritability subscale (range, 0-45) and the Home Situations Questionnaire-Autism Spectrum Disorder (range, 0-9). On both measures, higher scores indicate greater severity and a 25% reduction indicates clinical improvement. A clinician blind to treatment assignment rated the Improvement scale of the Clinical Global Impression (range, 1-7), a secondary outcome, with a positive response less than 3. **RESULTS**: At week 24, the Aberrant Behavior Checklist-Irritability subscale declined 47.7% in parent training (from 23.7 to 12.4) compared with 31.8% for parent education (23.9 to 16.3) (treatment effect, -3.9; 95%

CI, -6.2 to -1.7; P < .001, standardized effect size = 0.62). The Home Situations Questionnaire-Autism Spectrum Disorder declined 55% (from 4.0 to 1.8) compared with 34.2% in parent education (3.8 to 2.5) (treatment effect, -0.7; 95% CI, -1.1 to -0.3; P < .001, standardized effect size = 0.45). Neither measure met the prespecified minimal clinically important difference. The proportions with a positive response on the Clinical Global Impression-Improvement scale were 68.5% for parent training vs 39.6% for parent education (P < .001).

CONCLUSIONS AND RELEVANCE: ***For children with autism spectrum disorder, a 24-week parent training program was superior to parent education for reducing disruptive behavior on parent-reported outcomes, although the clinical significance of the improvement is unclear.*** The rate of positive response judged by a blinded clinician was greater for parent training vs parent education.

Yoko Kamio, Hideyuki Haraguchi, Atsuko Miyake and Mikio Hiraiwa (March 25, 2015) Brief report: large individual variation in outcomes of autistic children receiving low-intensity behavioral interventions in community settings. ***Child and Adolescent Psychiatry and Mental Health 20159:6 DOI: 10.1186/s13034-015-0039-6© Kamio et al.; licensee BioMed Central.***

Background: Despite widespread awareness of the necessity of early intervention for children with autism spectrum disorders (ASDs), evidence is still limited, in part, due to the complex nature of ASDs. This exploratory study aimed to examine the change across time in young children with autism and their mothers, who received less intensive early interventions with and without applied behavior analysis (ABA) methods in community settings in Japan. **Methods:** ***Eighteen children*** with autism (mean age: 45.7 months; range: 28–64 months) received ABA-based treatment (a median of 3.5 hours per week; an interquartile range of 2–5.6 hours per week) and/or eclectic treatment-as-usual (TAU) (a median of 3.1 hours per week; an interquartile range of 2–5.6 hours per week). Children's outcomes were the severity of autistic symptoms, cognitive functioning, internalizing and externalizing behavior after 6 months (a median of 192 days; an interquartile range of 178–206 days). In addition, maternal parenting stress at 6-month follow-up, and maternal depression at 1.5-year follow-up (a median of 512 days; an interquartile range of 358–545 days) were also examined. **Results:** Large individual variations were observed for a broad range of children's and mothers' outcomes. ***Neither ABA nor TAU hours per week were significantly associated with an improvement in core autistic symptoms. A significant improvement was observed only for internalizing problems, irrespective of the type, intensity or monthly cost of treatment received.*** Higher ABA cost per month (a median of 1,188 USD; an interquartile range of 538–1,888 USD) was associated with less improvement in language-social DQ (a median of 9; an interquartile range of −6.75-23.75). **Conclusions:** ***To determine an optimal program for each child with ASD in areas with poor ASD resources, further controlled studies are needed that assess a broad range of predictive and outcome variables focusing on both individual characteristics and treatment components.***

E. Sambandam, K. Rangaswami, S. Thamizharasan. (2014) Efficacy of ABA program for children with autism to improve general development, language and adaptive behavior. *Indian Journal of Positive Psychology 5(2), 192-195 http://www.iahrw.com/index.php/home/journal_detail/19#list.*

Applied behavior analysis (ABA) refers to the basic theories of behavior developed by Watson (1913), Thorndike (1921) and Skinner (1938) and later by other authors. Teaching methods based on ABA, include the research-based instructional strategies used with (1) Discrete Trial Training (DTT), it is effective for teaching academic and receptive language skills. (2) Pivotal Response Training (PRT), to teach expressive language, play, increasing generalization and social interaction skills and (3) Teaching Functional Routines (FR), daily routines and self-care skills are taught using this strategy (Arick & Falco, 1989; Krantz et al., 1993). The ABA strategies provide a powerful tool for enabling children with autism to meet important daily living skills and special educational aspects. ***The aim of the study was to conduct ABA programme on 15 children with autism to evaluate the usefulness of ABA based comprehensive treatment and to compare with a group of 15 children with autism receiving treatment as usual.*** A pre and post intervention model was used. Instruments validated were used to assess the severity of the disorder, developmental levels, language and adaptive functioning before starting intervention and one year after treatment. Instruments used are Childhood Autism Rating Scale (CARS), Denver Developmental Screening Test II (DDST-II), Receptive Expressive Emergent Language Scale (REELS) and Vineland Social Maturity Scale (VSMS). Paired "t" test and one-way ANOVA were used to analyze the data obtained. **Results:** the findings revealed that the intervention group showed significant improvement in relation to symptoms reduction and improvement in specific behaviors compared to control group. ***The overall score on CARS showed that the severity level of the intervention group had shown significant changes in the positive direction. Improvements in various developmental areas were seen in DDST-II. Similarly significant improvements in receptive, expressive language were brought out. VSMS showed significant improvement in all sub-domains. Comparatively no significant differences found for the control group except language area.***

Sham E, Smith T. (Fall 2014) Publication bias in studies of an applied behavior-analytic intervention: an initial analysis. *Journal of Applied Behavior Analysis. 47(3):663-78. doi: 10.1002/jaba.146.*

Publication bias arises when studies with favorable results are more likely to be reported than are studies with null findings. If this bias occurs in studies with single-subject experimental designs (SSEDs) on applied behavior-analytic (ABA) interventions, it could lead to exaggerated estimates of intervention effects. Therefore, we conducted an initial test of bias by comparing effect sizes, measured by percentage of nonoverlapping data (PND), in published SSED studies (n=21) and unpublished dissertations (n=10) on 1 well-established intervention for children with autism, pivotal response treatment (PRT). ***Although published and unpublished studies had similar methodologies, the mean PND in published studies was 22% higher than in unpublished studies, 95% confidence interval (4%, 38%). Even when unpublished studies are included, PRT appeared to be effective (PNDM=62%).*** Nevertheless, the disparity between published and unpublished studies suggests a need for further assessment of publication bias in the ABA literature.

Rebecca MacDonald, Diana Parry-Cruwys, Sally Dupere, William Ahearn. (Aug. 28, 2014) Assessing progress and outcome of early intensive behavioral intervention for toddlers with autism. *The New England Center for Children, Southborough, USA*

Intensive behavioral intervention for young children diagnosed with autism can produce large gains in social, cognitive, and language development. Although several studies have identified behaviors that are possible indicators of best outcome, changes in performance are typically measured using norm-referenced standardized scores referencing overall functioning level rather than via repeated observational measures of autism-specific deficits (i.e., social behavior). In the current study, 83 children with autism (CWA), aged 1, 2 and 3 years, and 58 same-aged typically developing children (TDC) were directly observed in the areas of cognitive skills, joint attention (JA), play, and stereotypic behavior using a measure called the Early Skills Assessment Tool (ESAT; MacDonald et al., 2006). CWA were assessed at entry into an EIBI program and again after 1 year of treatment. Changes in performance were compared pre- and post-treatment as well as to the normative data by age. ***Results indicate significant gains on the ESAT across all age groups with the greatest gains seen in the children who entered treatment prior to their second birthday. Increases were seen on direct measures of JA, play, imitation and language while decreases were seen in stereotypy regardless of level of performance at entry into EIBI.***

Fernandes, Fernanda Dreux Miranda, & Amato, Cibelle Albuquerque de la Higuera. (2013) Applied Behavior Analysis and Autism Spectrum Disorders: literature review. *CoDAS, 25(3), 289-296.*

Purpose: Systematic literature review about Applied Behavior Analysis (ABA) proposals directed towards persons with Autistic Spectrum Disorders aiming to contribute to a truly evidence-based practice. **Methods:** References from the last five years were obtained from the Web of Science, Medline, SciELO and Lilacs databases. Papers published in peer-reviewed journals were selected. Exclusion criteria were language, type of paper, theme and repeated papers. This selection resulted in 52 articles that were completely analyzed. Information regarding author, journal and date; title; theme and approach; casuistic; inclusion and exclusion criteria and conclusion was considered. **Results:** The papers refer to intervention processes, literature reviews, professional education, and parents' contributions to the intervention programs. ***Only four papers report the parents' role in the use of ABA principles at home. Studies about Professional education emphasize the specialized education. Most of the literature review papers conclude that the intervention programs are controversial, expensive and dependent of external variables. Although the articles describing intervention processes include 663 participants, a meta-analysis is not possible due to the lack of comparable inclusion and characterization criteria.***

Fein D, Barton M, Eigsti IM, Kelley E, Naigles L, Schultz RT, Stevens M, Helt M, Orinstein A, Rosenthal M, Troyb E, Tyson K. (Feb. 2013) Optimal outcome in individuals with a history of autism. *Journal of Child Psychology and Psychiatry. 54(2):195-205. doi: 10.1111/jcpp.12037.*

BACKGROUND: Although autism spectrum disorders (ASDs) are generally considered lifelong disabilities, literature suggests that a minority of individuals with an ASD will lose the diagnosis. However, the existence of this phenomenon, as well as its frequency and interpretation, is still controversial: were they misdiagnosed initially, is this a rare event, did they lose the full diagnosis, but still suffer significant social and communication impairments or did they lose all symptoms of ASD and function socially within the normal range? **METHODS**: The present study documents a group of these optimal outcome individuals (OO group, n=34) by comparing their functioning on standardized measures to age, sex, and nonverbal IQ matched individuals with high-functioning autism (HFA group, n=44) or typical development (TD group, n=34). For this study, 'optimal outcome' requires losing all symptoms of ASD in addition to the diagnosis, and functioning within the non-autistic range of social interaction and communication. Domains explored include language, face recognition, socialization, communication, and autism symptoms. **RESULTS:** Optimal outcome and TD groups' mean scores did not differ on socialization, communication, face recognition, or most language subscales, although three OO individuals showed below-average scores on face recognition. Early in their development, the OO group displayed milder symptoms than the HFA group in the social domain, but had equally severe difficulties with communication and repetitive behaviors. **CONCLUSIONS:** Although possible deficits in more subtle aspects of social interaction or cognition are not ruled out, the results substantiate the possibility of OO from autism spectrum disorders and demonstrate an overall level of functioning within normal limits for this group.

Conclusion: There is not enough evidence of ABA's preponderance over other alternatives.

Margaret A. Maglione, Daphna Gans, Lopamudra Das, Justin Timbie, Connie Kasari. (Nov. 2012) Nonmedical Interventions for Children With ASD: Recommended Guidelines and Further Research Needs For the Technical Expert Panel. ***HRSA Autism Intervention Research – Behavioral (AIR-B) Network Pediatrics, VOLUME 130 / ISSUE Supplement 2***

OBJECTIVE: To use the findings of a systematic review of scientific evidence to develop consensus guidelines on nonmedical interventions that address cognitive function and core deficits in children with autism spectrum disorders (ASDs) and to recommend priorities for future research. **METHODS**: The guidelines were developed by a Technical Expert Panel (TEP) consisting of practitioners, researchers, and parents. A systematic overview of research findings was presented to the TEP; guideline statements were drafted, discussed, debated, edited, reassessed, and presented for formal voting. **RESULTS**: ***The strength of evidence of efficacy varied by intervention type from insufficient to moderate. There was some evidence that greater intensity of treatment (hours per week) and greater duration (in months) led to better outcomes. The TEP agreed that children with ASD should have access to at least 25 hours per week of comprehensive intervention to address social communication, language, play skills, and maladaptive behavior. They agreed that applied behavioral analysis, integrated behavioral/developmental programs, the Picture Exchange Communication System, and various social skills interventions have shown efficacy.*** Based on identified gaps, they recommend that future research focus on assessment and monitoring of outcomes, addressing the needs of pre/nonverbal children and adolescents, and identifying the most effective

strategies, dose, and duration to improve specific core deficits. **CONCLUSIONS**: The creation of treatment guidelines and recommendations for future research represents an effort by leading experts to improve access to services for children with ASDs while acknowledging that the research evidence has many gaps.

Landa RJ, Kalb LG. (Nov. 2012) Long-term outcomes of toddlers with autism spectrum disorders exposed to short-term intervention. ***Pediatrics 130 Suppl 2:S186-90. doi: 10.1542/peds.2012-0900Q.***

OBJECTIVES: To examine long-term outcomes of toddlers with autism spectrum disorder (ASD) who received a 6-month early intervention at age 2. **METHODS:** Forty-eight toddlers diagnosed with an ASD received a 6-month evidence-based intervention. Cognitive (IQ) and communication ability, as well as severity of autism symptoms, were assessed by using standardized measures at preintervention (Time 1 [T1]; mean [M] age = 27 months), postintervention (T2; M age = 35 months), short-term follow-up (T3; M age = 41 months), and long-term follow-up (T4; M age = 72 months). **RESULTS:** ***From pre- to post intervention, significant gains in IQ and Vineland Communication domain standard scores as well as a reduction in ASD severity were achieved*** (all P < .01). Between T2 and T3, the 6-month period immediately after completion of the intervention, IQ and Communication scores stabilized and ASD severity increased significantly (P < .05). During the long-term follow-up period (T3-T4), IQ and Communication scores significantly increased again, but ASD severity increased significantly as well (all P < .05). For overall trajectory (T1-T4), robust gains were observed for both IQ and communication; ASD severity did not change. **CONCLUSIONS:** ***Findings highlight the potential for positive long-term outcomes in toddlers with ASD. Additional research is needed to understand the relation between early exposure to uninterrupted intervention and developmental gains, and whether initial reduction in ASD symptom severity can be sustained through targeted intervention.***

Reichow B, Barton EE, Boyd BA, Hume K. (Oct 17, 2012) Early intensive behavioral intervention (EIBI) for young children with autism spectrum disorders (ASD). ***Cochrane Database Syst Rev.;10:CD009260. doi: 10.1002/14651858.CD009260.pub2.***

BACKGROUND: The rising prevalence of autism spectrum disorders (ASD) increases the need for evidence-based behavioral treatments to lessen the impact of symptoms on children's functioning. At present, there are no curative or psychopharmacological therapies to effectively treat all symptoms of the disorder. ***Early intensive behavioral intervention (EIBI), a treatment based on the principles of applied behavior analysis delivered for multiple years at an intensity of 20 to 40 hours per week, is one of the more well-established treatments for ASD***.

OBJECTIVES: To systematically review the evidence for the effectiveness of EIBI in increasing the functional behaviors and skills of young children with ASD.

SEARCH METHODS: We searched the following databases on 22 November 2011: CENTRAL (2011 Issue 4), MEDLINE (1948 to November Week 2, 2011), EMBASE (1980 to Week 46, 2011), PsycINFO (1806 to November Week 3, 2011), CINAHL (1937 to current), ERIC (1966 to current), Sociological Abstracts (1952 to current), Social Science Citation Index (1970 to current), WorldCat, metaRegister of Controlled Trials, and Networked Digital Library of Theses and

Dissertations. We also searched the reference lists of published papers. **SELECTION CRITERIA:** Randomized control trials (RCTs), quasi-randomized control trials, or clinical control trials (CCTs) in which EIBI was compared to a no-treatment or treatment-as-usual control condition***.*** ***Participants must have been less than six years of age at treatment*** onset and assigned to their study condition prior to commencing treatment. **DATA COLLECTION AND ANALYSIS**: Two authors independently selected and appraised studies for inclusion and assessed the risk of bias in each included study. All outcome data were continuous, from which standardized mean difference effect sizes with small sample correction were calculated. We conducted random-effects meta-analysis where possible, which means we assumed individual studies would provide different estimates of treatment effects. **MAIN RESULTS:** One RCT and four CCTs with a total of 203 participants were included. Reliance on synthesis from four CCTs limits the evidential base and this should be borne in mind when interpreting the results. All studies used a treatment-as-usual comparison group. We synthesized the results of the four CCTs using a random-effects model of meta-analysis of the standardized mean differences. Positive effects in favor of the EIBI treatment group were found for all outcomes. The mean effect size for adaptive behavior was g = 0.69 (95% CI 0.38 to 1.01; P < 0.0001). The mean effect size for IQ was g = 0.76 (95% CI 0.40 to 1.11; P < 0.0001). Three measures of communication and language skills all showed results in favor of EIBI: expressive language g = 0.50 (95% CI 0.05 to 0.95; P = 0.03), receptive language g = 0.57 (95% CI 0.20 to 0.94; P = .03), and daily communication skills g = 0.74 (95% CI 0.30 to 1.18; P = 0.0009). The mean effect size for socialization was g = 0.42 (95% CI 0.11 to 0.73; P = 0.0008), and for daily living skills was g = 0.55 (95% CI 0.24 to 0.87; P = 0.0005). Additional descriptive analyses of other aspects related to quality of life and psychopathology are presented. However, ***due to the inclusion of non-randomized studies, there is a high risk of bias and the overall quality of evidence was rated as 'low' using the GRADE system, which rates the quality of evidence from meta-analyses to determine recommendations for practice.*** **AUTHORS' CONCLUSIONS:** ***There is some evidence that EIBI is an effective behavioral treatment for some children with ASD. However, the current state of the evidence is limited because of the reliance on data from non-randomized studies (CCTs) due to the lack of RCTs. Additional studies using RCT research designs are needed to make stronger conclusions about the effects of EIBI for children with ASD.***

Boyd BA, McDonough SG, Bodfish JW. (June 2012) Evidence-based behavioral interventions for repetitive behaviors in autism. ***Journal of Autism and Developmental Disorders. 42(6):1236-48. doi: 10.1007/s10803-011-1284-z.***

Restricted and repetitive behaviors (RRBs) are a core symptom of autism spectrum disorders (ASD). There has been an increased research emphasis on repetitive behaviors; however, this research primarily has focused on phenomenology and mechanisms. Thus, the knowledge base on interventions is lagging behind other areas of research. The literature suggests there are evidence-based practices to treat "lower order" RRBs in ASD (e.g., stereotypies); yet, ***there is a lack of a focused program of intervention research for "higher order" behaviors (e.g., insistence on sameness). This paper will (a) discuss barriers to intervention development for***

RRBs; (b) review evidence-based interventions to treat RRBs in ASD, with a focus on higher order behaviors; and (c) conclude with recommendations for practice and research.

There is a growing body of behavioral and biological science research on the etiology, phenomenology, and developmental course of repetitive behaviors in ASD. Yet, this increasing knowledge base does not appear to have led to a commensurate increase in research focusing on behavioral treatments for RRBs in ASD. It ***does appear as though ABA-based, focused behavioral intervention strategies are effective at reducing some types of repetitive behaviors found in individuals with ASD.*** We also are learning that some of the psychopharmacological interventions thought to be effective for this symptom domain are not as promising as once hoped (King et al.2009; Volkmar 2009). ***Thus, there is a place for more research on behavioral intervention strategies to address the full variety of repetitive behaviors found in ASD.***

Presently, two gaps exist in the literature on evidenced-based behavioral and psychosocial intervention practices for repetitive behaviors in autism. First, given that there are a variety of discrete types of repetitive behaviors, most of the behavioral/psychosocial intervention research has focused on the lower order forms of repetitive behavior and there is a need for more established evidenced-based practices to treat the quintessential "autistic" repetitive behaviors like rituals, insistence on sameness, difficulty with change, intense preoccupations, attachments and interests (Bodfish 2004). Second, existing studies and their resultant intervention practices have focused primarily on the frequency of occurrence of repetitive behaviors as outcomes, and as a result fail to address the underlying aspect of behavioral inflexibility that is so characteristic of autism. This trait is evident perhaps most clearly in the "higher order" or cognitive aspects of repetitive behaviors, such as sameness behaviors and circumscribed interests. It is reasonable to presume that a child who is more flexible in their ways of thinking and engaging with their environment will have more opportunities to explore and learn a variety of adaptive skills and behaviors (Pierce and Courchesne 2001). Thus, decreasing the child's inflexible patterns of behavior and engagement in repetitive behaviors may make the child more amenable to treatments targeting social-communication or other symptoms of autism. If so, then research on repetitive behavior interventions in ASD may need to focus less on specific topographies of RRB and more on strategies that could impact the overall level of behavioral flexibility and adaptability to promote optimal child and family outcomes.

Dawson G, Burner K. (Dec. 2011) Behavioral interventions in children and adolescents with autism spectrum disorder: a review of recent findings. ***Current Opinion Pediatrics. 23(6):616-20. doi: 10.1097/MOP.0b013e32834cf082.***

PURPOSE OF REVIEW: The study provides an overview of recent studies on behavioral interventions for children and adolescents with autism spectrum disorder (ASD).
RECENT FINDINGS: ***Recent reviews of the effectiveness of early intensive behavioral intervention (EIBI) conclude that EIBI can improve language and cognitive skills.*** The first randomized controlled trial (RCT) of a comprehensive early intervention for toddlers with ASD

demonstrated gains in language, cognitive abilities, and adaptive behavior. Targeted, brief behavioral interventions are efficacious for improving social communication in young children with ASD. Parents can be taught to deliver behavioral interventions, which are associated with improvements in parent-child interaction; effects on child outcome, however, have been mixed. Several studies show that social skills interventions are efficacious for improving peer relationships and social competence. Behavioral interventions are also effective for reducing anxiety symptoms and aggression. Medication combined with behavioral intervention was found to be more effective for reducing aggression than medication alone.
SUMMARY: ***Behavioral interventions are effective for improving language, cognitive abilities, adaptive behavior, and social skills, and reducing anxiety and aggression.*** Medication combined with behavioral intervention appears to be more effective for reducing aggressive behavior than medication alone.

Peters-Scheffer, Nienke; Didden, Robert; Korzilius, Hubert; Sturmey, Peter. (Jan. – March 2011) A Meta-Analytic Study on the Effectiveness of Comprehensive ABA-Based Early Intervention Programs for Children with Autism Spectrum Disorders. ***Research in Autism Spectrum Disorders, v5 n1 p60-69***

Excitement and controversy have surrounded the effectiveness of Early Intensive Behavioral Intervention (EIBI) for young children with autism. The purpose of this meta-analysis was to investigate the effectiveness of EIBI based on applied behavior analysis in young children with Autism Spectrum Disorders (ASD). There were 11 studies with 344 children with ASD. Quality of studies was assessed using the Downs and Black Checklist. Experimental groups who received EIBI outperformed the control groups on IQ, non-verbal IQ, expressive and receptive language and adaptive behavior. Differences between the experimental and control groups were 4.96-15.21 points on standardized tests. ***These results strongly support the effectiveness of EIBI.***

Geraldine Dawson, Sally Rogers, Jeffrey Munson, Milani Smith, Jamie Winter, Jessica Greenson, Amy Donaldson, Jennifer Varley. (Jan. 2010) Randomized, Controlled Trial of an Intervention for Toddlers With Autism: The Early Start Denver Model. ***Pediatrics VOLUME 125 / ISSUE 1*****.**

OBJECTIVE: To conduct a randomized, controlled trial to evaluate the efficacy of the Early Start Denver Model (ESDM), a comprehensive developmental behavioral intervention, for improving outcomes of toddlers diagnosed with autism spectrum disorder (ASD). **METHODS**: ***Forty-eight children*** diagnosed with ASD between 18 and 30 months of age were randomly assigned to 1 of 2 groups: (1) ESDM intervention, which is based on developmental and applied behavioral analytic principles and delivered by trained therapists and parents for 2 years; or (2) referral to community providers for intervention commonly available in the community. **RESULTS**: Compared with children who received community-intervention, children who received ESDM showed significant improvements in IQ, adaptive behavior, and autism diagnosis. Two years after entering intervention, the ESDM group on average improved 17.6 standard score points (1 SD: 15 points) compared with 7.0 points in the comparison group relative to baseline scores. The ESDM group maintained its rate of growth in adaptive behavior compared with a normative sample of typically developing children. In contrast, over the 2-year span, the comparison group showed greater delays in adaptive behavior. Children who received ESDM also were more likely

to experience a change in diagnosis from autism to pervasive developmental disorder, not otherwise specified, than the comparison group. **CONCLUSIONS**: ***This is the first randomized, controlled trial to demonstrate the efficacy of a comprehensive developmental behavioral intervention for toddlers with ASD for improving cognitive and adaptive behavior and reducing severity of ASD diagnosis***. Results of this study underscore the importance of early detection of and intervention in autism.

Sally J. Rogers and Laurie A. Vismara. (Jan. 2008) Evidence-Based Comprehensive Treatments for Early Autism. Journal of Clinical Child and Adolescent Psychology 37(*1): 8–38.*

Early intervention for children with autism is currently a politically and scientifically complex topic. Randomized controlled trials have demonstrated positive effects in both short-term and longer term studies. ***The evidence suggests that early intervention programs are indeed beneficial for children with autism, often improving developmental functioning and decreasing maladaptive behaviors and symptom severity at the level of group analysis.*** Whether such changes lead to significant improvements in terms of greater independence and vocational and social functioning in adulthood is also unknown. Given the few randomized controlled treatment trials that have been carried out, the few models that have been tested, and the large differences in interventions that are being published***, it is clear that the field is still very early in the process of determining (a) what kinds of interventions are most efficacious in early autism, (b) what variables moderate and mediate treatment gains and improved outcomes following intervention, and (c) the degree of both short-term and long-term improvements that can reasonably be expected.*** To examine these current research needs, the empirical studies of comprehensive treatments for young children with autism published since 1998 were reviewed. Lovaas's treatment meet Chambless and colleague's (Chambless et al., 1998;Chambless et al., 1996) criteria for “well-established” and no treatment meets the “probably efficacious” criteria, though three treatments meet criteria for “possibly efficacious” (Chambless & Hollon, 1998). Most studies were either Type 2 or 3 in terms of their methodological rigor based on Nathan and Gorman's (2002) criteria. Implications of these findings are also discussed in relation to practice guidelines as well as critical areas of research that have yet to be answered.

Cohen H, Amerine-Dickens M, Smith T. (April 2006) Early intensive behavioral treatment: replication of the UCLA model in a community setting. *Journal Developmental Behavior Pediatrics. 27(2 Suppl):S145-55.*

Although previous studies have shown favorable results with early intensive behavioral treatment (EIBT) for children with autism, it remains important to replicate these findings, particularly in community settings. The authors conducted a 3-year prospective outcome study that compared 2 groups: (1) 21 children who received 35 to 40 hours per week of EIBT from a community agency that replicated Lovaas' model of EIBT and (2) 21 age- and IQ-matched children in special education classes at local public schools. A quasi-experimental design was used, with assignment to groups based on parental preference. Assessments were conducted by independent examiners for IQ (Bayley Scales of Infant Development or Wechsler Preschool and

Primary Scales of Intelligence), language (Reynell Developmental Language Scales), nonverbal skill (Merrill-Palmer Scale of Mental Tests), and adaptive behavior (Vineland Adaptive Behavior Scales). Analyses of covariance, with baseline scores as covariates and Year 1-3 assessments as repeated measures, revealed that, with treatment, the EIBT group obtained significantly higher IQ ($F = 5.21$, $p = .03$) and adaptive behavior scores ($F = 7.84$, $p = .01$) than did the comparison group. No difference between groups was found in either language comprehension ($F = 3.82$, $p = .06$) or nonverbal skill. Six of the 21 EIBT children were fully included into regular education without assistance at Year 3, and 11 others were included with support; in contrast, only 1 comparison child was placed primarily in regular education. ***Although the study was limited by the nonrandom assignment to groups, it does provide evidence that EIBT can be successfully implemented in a community setting.***

McEachin JJ, Smith T, Lovaas OI. (Jan. 1993) Long-term outcome for children with autism who received early intensive behavioral treatment. ***American Journal of Mental Retardation. 97(4):359-72; discussion 373-91.***

After a very intensive behavioral intervention, an experimental group of 19 preschool-age children with autism achieved less restrictive school placements and higher IQs than did a control group of 19 similar children by age (Lovaas, 1987). The present study followed-up this finding by assessing subjects at a mean age of 11.5 years. Results showed that the experimental group preserved its gains over the control group. The 9 experimental subjects who had achieved the best outcomes at age 7 received particularly extensive evaluations indicating that 8 of them were indistinguishable from average children on tests of intelligence and adaptive behavior. Thus***, behavioral treatment may produce long-lasting and significant gains for many young children with autism.***

Lovaas, O. Ivar. (Feb. 1987) Behavioral treatment and normal educational and intellectual functioning in young autistic children. ***Journal of Consulting and Clinical Psychology, Vol 55(1), 3-9*****.**

Autism is a serious psychological disorder with onset in early childhood. Autistic children show minimal emotional attachment, absent or abnormal speech, retarded IQ, ritualistic behaviors, aggression, and self-injury. The prognosis is very poor, and medical therapies have not proven effective. This article reports the results of behavior modification treatment for two groups of similarly constituted, young autistic children. Follow-up data from an intensive, long-term experimental treatment group ($n = 19$) showed that 47% achieved normal intellectual and educational functioning, with normal-range IQ scores and successful first grade performance in public schools. Another 40% were mildly retarded and assigned to special classes for the language delayed, and only 10% were profoundly retarded and assigned to classes for the autistic/retarded. In contrast, only 2% of the control-group children ($n = 40$) achieved normal educational and intellectual functioning; 45% were mildly retarded and placed in language-delayed classes, and 53% were severely retarded and placed in autistic/retarded classes.

Assessment of Other State Approaches

HB 2962 requires "reviews of pilot projects and research from other states on the effects of applied behavioral analysis treatment on autism spectrum disorders." This section will review six states, Arkansas, Louisiana, Missouri, Nevada, Texas and Utah, and the various approaches to covering ASD services, specifically ABA, in state Medicaid programs.

It's important to note that each state Medicaid program varies in number of lives served, services, provider network, reimbursement rates, expenditures, etc. As mentioned in a previous section, EPSDT services must be medically necessary as determined by each state Medicaid program. A state's inclusion of ABA services could be a result of a waiver, state legislative mandate or from litigation.

Arkansas

The Department of Human Services (DHS) manages the Medicaid program in Arkansas. ARKids First-A is Arkansas' Medicaid program for children. In SFY2015, the Arkansas Medicaid operating budget was $6.337 billion, while serving just over 1 million enrollees.[11]

More than 85 percent of Arkansas Medicaid beneficiaries were enrolled in a managed care plan as of 2014.[12]

A statewide legislative task force was established in 2007 (under Act 1016) to study the topic of autism.[13] The task force is required to meet at least once every three months and includes members of the Arkansas General Assembly, members of the autism community, and representatives from various state agencies and organizations. Subsequent legislation in 2009 (Act 1272) extended the task force duties beyond the 2008 sunset.[14] On or before August 31st of each year, the task force provides an annual report to the General Assembly, which includes, examining the state's response to autism spectrum disorders, determining best practices, and recommendations on efficient treatment methods, funding options for treatment, and what changes to the law could improve education and treatment for those with ASD.[15]

Following the reauthorization of the task force, state legislators passed Act 196 in 2011 requiring health insurance policies to cover all services for ASD, including ABA.[16] Two caps were specified in Act 196 for

[11] Arkansas Medicaid Program Overview SFY2015; https://www.medicaid.state.ar.us/Download/general/MOBSFY2015.pdf
[12] Arkansas Medicaid; https://www.healthinsurance.org/arkansas-medicaid/
[13] Easter Seals, "State Autism Profiles: Arkansas" (November 2015); http://www.easterseals.com/explore-resources/living-with-autism/profiles-arkansas.html
[14] Arkansas Autism Resource & Outreach Center, "Autism Legislative Task Force"; http://aaroc.org/resources/arkansas-autism-legislative-task-force/
[15] State of Arkansas 87th General Assembly Regular Session, "Act 1272" (2009); http://www.arkleg.state.ar.us/assembly/2009/R/Acts/Act1272.pdf
[16] Arkansas Insurance Department, "Consumer Alert: New Autism Coverage Requirements" (Nov 18 2011); http://insurance.arkansas.gov/Administration/newsreleases/pr2011_11_18.pdf

ABA treatment: a $50,000 annual limit and the ABA service is limited to children under the age of 18 years old.[17] Act 196 did not include the Medicaid program in its mandate.

In a 2009 report to the General Assembly, the task force recommended the development of a Medicaid waiver specific to autism services.[18]

The Arkansas Autism Waiver is a 1915 (c) Medicaid waiver program that began serving members in October 2012. The waiver provides members ages 18 months through 6 years with one-on-one, intensive early intervention treatment with a diagnosis of ASD. Arkansas's waiver application explains that these services "…are not available to children through the AR Medicaid State Plan. These services are designed to maintain Medicaid eligible participants at home in order to preclude or postpone institutionalization."[19] The initial waiver application made 150 spots available for members with ASD.

Members were eligible to receive up to 30 hours per week of services through the waiver for no longer than a three-year period. The services must be delivered by a tiered provider team, including a consultant (masters' level), lead therapist (bachelors' level), and a line therapist (paraprofessional level).[20] The waiver program, Arkansas Autism Partnership, is operated by the University of Arkansas for Medical Sciences (UAMS) Partners for Inclusive Communities, under the administrative authority of the Division of Medical Services.[21]

The Autism Waiver was set to expire on Sept. 30, 2015. However, Act 1008 passed in 2015, required the Department of Human Services to expand the capacity of the waiver. Act 1008 decreased the maximum hours of services per week to 25 hours, added 50 additional slots to the waiver and set an annual cap per child at $50,000 worth of services.[22] The amendments to the waiver were to be submitted by Jan. 1, 2016.

The Arkansas General Assembly, through Act 679 in 2015, appropriated more than $3 million specifically for the Autism Waiver Program.[23]

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[17] Easter Seals, "State Autism Profiles: Arkansas" (November 2015); http://www.easterseals.com/explore-resources/living-with-autism/profiles-arkansas.html

[18] Arkansas Legislative Task Force On Autism, Report to the 87th General Assembly on Act 1272 Of 2009; http://www.arkleg.state.ar.us/bureau/research/Publications/Task%20Forces/Legislative%20Task%20Force%20on%20Autism/Autism%20Task%20Force%20Annual%20Reports%20to%20ALC%20and%20Task%20Force%20Meeting%20Summaries/2009%20Autism%20Task%20Force%20Annual%20Report%20to%20Arkansas%20Legislative%20Council.pdf

[19] Division of Medical Services, "Provider Manual Update Transmittal SecI-1-12" (Oct 1 2012); http://www.sos.arkansas.gov/rulesRegs/Arkansas%20Register/2012/Sept12Reg/016.06.12-009.pdf

[20] Easter Seals, "State Autism Profiles: Arkansas" (November 2015); http://www.easterseals.com/explore-resources/living-with-autism/profiles-arkansas.html

[21] Division of Medical Services, "Provider Manual Update Transmittal SecI-1-12" (Oct 1 2012); http://www.sos.arkansas.gov/rulesRegs/Arkansas%20Register/2012/Sept12Reg/016.06.12-009.pdf

[22] State of Arkansas 90th General Assembly Regular Session, "Act 1008" (2015); http://www.arkleg.state.ar.us/assembly/2015/2015R/Acts/Act1008.pdf

[23] Arkansas Bureau of Legislative Research (Jessica Beel), "2015 Legislative Overview"; http://www.arkleg.state.ar.us/bureau/research/Publications/Task%20Forces/Legislative%20Task%20Force%20on%20Autism/Arkansas%20Legislation%20on%20Autism%202015.pdf

Louisiana

The state of Louisiana provides health care coverage to more than a million Louisiana residents through Medicaid, most of whom are children 18 and under. Since 2011, more than two-thirds of beneficiaries in Louisiana Medicaid are enrolled in a health benefit plan through a managed care organization.[24] The Louisiana Medicaid Program operates within the Louisiana Department of Health, and during SFY2015 had total program expenditures of $7.8 billion.[25]

Louisiana passed a law in 2009 mandating commercial insurers cover treatment for ASD, including ABA. The legislation set caps for services at $36,000/annually and $144,000/lifetime. In the 2009 legislation, Louisiana's Medicaid program was exempt from the mandated coverage.

However, in July 2013, a court order (*Chisholm v. Kliebert*) required that certain provider types be able to enroll in Louisiana's Medicaid program as independent providers that are eligible to receive sufficient reimbursement for ABA services.[26] The *Chisholm* court order found that Louisiana Medicaid was in violation of federal law by not providing members with ASD sufficient access to community-based behavioral and psychological services rendered by licensed psychologists. The court ordered the state to find a remedy to the case, which resulted in the inclusion of ABA therapy to the state's Medicaid program.

Following *Chisholm*, Louisiana submitted a state plan amendment to CMS in February 2014. Verbal approval from CMS in April 2014 allowed the state to begin providing ABA services; on May 23, 2014, written approval from CMS permitted the state to retroactively cover the service back to February 2014. Louisiana's state plan amendment provides minimal detail about ABA, and instead focuses on the program allowing "other licensed practitioners." Louisiana's state legislature appropriated $24.9 million to the Medicaid program in SFY2015 for payments to ABA providers.[27]

Louisiana's Medicaid program provides coverage for members under the age of 21, who receive services from a licensed behavior analyst for services provided within their scope of practice. The provider shall only be reimbursed for Medicaid-covered therapy services that are medically necessary and prior authorized in accordance with the member's treatment plan.

Members are eligible to receive these services if they meet the following criteria: under the age of 21; exhibit excesses and/or deficits of behaviors that significantly interfere with home or community activities; medically stable and not require 24-hour medical/nursing monitoring or procedures provided

[24] Medicaid.gov, Medicaid & CHIP in Louisiana: Managed Care Profile; https://www.medicaid.gov/medicaid/by-state/stateprofile.html?state=louisiana

[25] Louisiana Department of Health, Louisiana Medicaid Annual Report State Fiscal Year 2014/15; http://dhh.louisiana.gov/assets/medicaid/AnnualReports/MAR_SFY2014_15.pdf

[26] *Chisolm ex rel. CC, MC v. Kliebert*, Order, Civil Action No. 97–3274, E.D. Louisiana, July 18, 2013; http://new.dhh.louisiana.gov/assets/docs/BehavioralHealth/LBHP/2014_RFP_Procurement_Library/APPENDIX-H_CHISHOLMvKLIEBERT_STIPULATED-ORDER.pdf

[27] Louisiana Department of Health and Hospitals, Medicaid BH Medical Director: James Hussey, M.D. "Louisiana Medicaid Program Applied Behavior Analysis (ABA) Services" (Oct. 20, 2015) http://www.nashp.org/pioneering-behavioral-health-treatment-and-therapy-state-approaches-to-providing-coverage-for-aba/

in a hospital; diagnosed by "qualified health care professional" with condition for which ABA-based therapy services are recognized as therapeutically appropriate, including ASD; have Comprehensive Diagnostic Evaluation (CDE) by qualified health care professional; and have prescription for ABA-based therapy services from qualified health care professional.[28]

Prior authorization by a physician or appropriate specialist must be obtained for any ABA service deemed medically necessary. In SFY2015, $4,779,915 in payments for ABA services was provided on behalf of 438 recipients.[29]

Missouri

The state of Missouri provides health care coverage to an average monthly enrollment of 842,888 lives through Medicaid with 60.8 percent of those served listed as children. The Department of Social Services is officially designated as the single state agency charged with administration of the Missouri Medicaid program. In 2007, the division's name changed to the MO HealthNet Division, (MHD). Expenditures listed for SFY14 for this program were $7.4 billion. [30]

Effective Sept. 1, 1995, the state of Missouri introduced a new health care delivery program called MC+ Managed Care to serve certain participants that meet specified eligibility criteria. Renamed to the MO HealthNet Managed Care health plan, it is required to provide most of the basic benefits as identified by the state plan for adults and all medically necessary services for children under the age of 21. Other services previously not covered under MO HealthNet may be provided to participants if the health plan determines it is a suitable, appropriate and cost effective approach to providing a covered service. From 1995 to 2008, multiple counties were added to this program based on geographical regions. The participants who are eligible for inclusion in MO HealthNet Managed Care health plans are divided into three groups:

- Parents/Caretaker, Children, Pregnant Women, and Refugees
- Other MO HealthNet Children who are in the care and custody of the State of Missouri and receiving adoption subsidy assistance
- State Children's Insurance Program (SCHIP) children[31]

ABA services are not covered in the managed care portion of this program.[32]

The Missouri Department of Mental Health's Division of Developmental Disabilities (Division of DD) administers five Medicaid Home and Community Based (HCB) Waiver programs for individuals with

[28] Louisiana Department of Health, "Louisiana Medicaid Offers Applied Behavioral Analysis Services" (March 31 2014); http://dhh.louisiana.gov/index.cfm/newsroom/detail/2999
[29] Louisiana Department of Health and Hospitals, Medicaid BH Medical Director: James Hussey, M.D. "Louisiana Medicaid Program Applied Behavior Analysis (ABA) Services" (Oct 20, 2015) http://www.nashp.org/pioneering-behavioral-health-treatment-and-therapy-state-approaches-to-providing-coverage-for-aba/
[30] MO HealthNet Enrollees and Expenditures SFY2014, http://dss.mo.gov/mhd/general/pdf/mhdollars.pdf
[31] Missouri Dept of Social Services, "MO HealthNet Managed Care (formerly MC+ Managed Care)"; http://dss.mo.gov/mhd/general/pages/about.htm#admin
[32] Missouri Health Net Covered Services Matrix; http://dss.mo.gov/mhd/providers/pdf/benefitmatrix.pdf

intellectual or other developmental disabilities. The five waivers are the Comprehensive Waiver; Missouri Children with Developmental Disabilities Waiver (MOCDD) or Sarah Jian Lopez Waiver; Support Waiver; Partnership for Hope; and Autism Waiver.

The Autism Waiver began in July 2009. A person eligible for the Autism Waiver must be at least three years of age and not more than 18 years of age and be living in the community, with family. The child must have a diagnosis of Autism Spectrum Disorder as defined in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders, American Psychiatric Association; pervasive developmental disorder, not otherwise specified; childhood disintegrative disorder, and Rett's Syndrome. Additional criteria for Autism Waiver eligibility include the child experiences behavioral, and/or social or communication deficits that: Require supervision which makes it difficult for the family to provide care in the home, and interfere with the child participating in activities in the community. The child shall have been determined to meet ICF/ID level of care and have a determination by a Division of DD Regional Office that the person's needs for Autism Waiver services can be met at an annual cost that will not exceed $22,000.[33] In the Autism Waiver, no more than 150 persons can be served at any given time.

On June 10, 2010, Missouri Governor Jay Nixon signed HB 1311 into law. The new law requires group health benefit plans to provide coverage for diagnosis and treatment of autism spectrum disorder. Coverage is limited to evidence-based, medically necessary autism therapies, including behavioral health treatment such as ABA. Covered services include psychiatric, psychological, habilitative or rehabilitative care, ABA, therapeutic care and pharmacy care. The final version of HB 1311 includes coverage for applied behavior analysis (ABA) for children with autism spectrum disorders up to $40,000 per year, or more if medically necessary, through age 18. Insurance coverage for non-ABA therapies is not subject to age limits or monetary caps. Insurers cannot impose visit limits on any coverage under the new law, other than the dollar cap on ABA. The new law's effective date was Jan. 1, 2011. Mo. Rev. Stat. § 337.300 et seq. and § 376.1224 (HB 1311 of 2010; Fiscal Note) **NOTE:** "The provisions of this section shall not apply to MO HealthNet programs."

As required by the law in HB 1311, each February beginning in 2012 and continuing thereafter, the department of insurance, financial institutions and professional registration shall submit a report to the general assembly regarding the implementation of the coverage required in the law. The report shall include, but shall not be limited to, the following:

- The total number of insureds diagnosed with autism spectrum disorder;
- The total cost of all claims paid out in the immediately preceding calendar year for coverage required by this section;
- The cost of such coverage per insured per month; and
- The average cost per insured for coverage of ABA;

[33] Missouri Dept of Mental Health, Autism Waiver; https://dmh.mo.gov/dd/progs/waiver/autism.html

All health carriers and health benefit plans subject to the provisions of this section shall provide the department with the data requested by the department for inclusion in the annual report.

Although this report is *not specific to Medicaid* and includes other payers, the latest published report dated Feb. 1, 2016, included the following findings. The 2016 report is the fifth annual report. Through the five years since the passage of HB 1311, health insurance coverage has expanded significantly, particularly in the individual health market. The data show that autism coverage continued to expand into 2015, while the costs as a percent of overall health care costs remained negligible. For 2015, the cost of all autism treatments accounted for just 0.25 percent of total claims incurred and the cost of ABA therapy accounted for only 0.12 percent. These actual costs are consistent with the projections made by the DIFP prior to the passage of House Bill 1311 in 2010. Individuals diagnosed with an ASD received a total of 61,457 treatments, of which 32,997 were ABA sessions. This number is up from 14,505 ABA sessions in 2013 (the first year these data were collected). Between 2011 and 2015, claim costs incurred for autism services increased from $4.3 million to nearly $10.3 million, of which $5.2 million was directed to ABA services. The number of claims for treatment directly related to an ASD affords a glimpse into the extent of services provided. Claim counts were added to the data collection in 2013, two years after the effective date of the autism mandate. However, even over this three year period, claims have grown dramatically. In 2013, just over 43,000 claims were paid for treatment of an ASD. By 2015, claims submitted for ASD services exceeded 61,000. [34]

In October of 2015, MO HealthNet issued a bulletin announcing they would begin enrolling providers for ABA services, and pre-certifying medically necessary ABA services for participants with ASD who are under the age of 21. ABA precertification requests are submitted to the Behavioral Health Help Desk and may be authorized up to a six-month period based on documented need. Daily limits are in place. MO HealthNet is currently continuing to work to further develop this program.[35]

Governor Nixon signed HB2010 on May 5, 2016, for funding that began July 1, 2016, and provides more than $200 million in new funding for the Missouri Department of Mental Health. The new funding includes a $14 million increase to ensure that there continues to be no waiting list for in-home services for low-income Missourians with developmental disabilities; continuation funding for the Partnership for Hope Medicaid waiver; a 3 percent rate increasing and rebasing for service providers; $18.2 million to expand access to crisis residential services for people who can no longer be served in their homes; and $5 million to expand the Thompson Center for Autism.[36]

[34] Dept of Insurance, Financial Institutions & Professional Registration Annual Report to the Missouri Legislature, "Insurance Coverage for Autism Treatment & Applied Behavior Analysis: Statistics Section" (Feb 1, 2016); https://insurance.mo.gov/consumers/autismFAQ/documents/2016AutismReport2012016.pdf
[35] Provider Bulletin MoHealthNet, Volume 38, Number 15, October 20, 2015.
[36] Developmental Disability Services of Jackson County, The Lens: State Support for Developmental Disability Services Reaches Record Levels (Summer 2016); http://eitas.org/wp-content/uploads/2016/01/2016-Summer-Newsletter.pdf

Nevada

As of July 2016, Nevada has enrolled 609,435 individuals in Medicaid and CHIP. Nevada's Medicaid program is managed care with a waiver in 2013 that allowed for fee-for-service care.[37]

In early 2014, the Division of Health Care Financing and Policy (the Division), Nevada's Medicaid agency, began researching the possibility of covering ABA treatment for children diagnosed with ASD. They researched what other states did, including Louisiana and Washington, and discussed options with CMS. Using CMS's July 7, 2014, memo on Medicaid programs providing medically necessary diagnostic and treatment services to children with ASD as guidance, Nevada submitted its State Plan Amendment in October of 2015 to cover ABA. It was approved in March 2016 for an effective coverage date to provide ABA services for children with ASD on Jan. 1, 2016.

The division was appropriated approximately $45 million over two years through the legislative budgeting process for ABA coverage. Using its own State Department of Education numbers, Nevada estimated that it had approximately 1800 children on Medicaid with ASD. [38] Nevada covered ABA as a medical treatment through EPSDT and had no caps on coverage.

Nevada approached implementation by creating its enrollment system first. Because CMS had not approved yet, providers were not ready when the program began. Providers have slowly been entering the program and as of November 2016, 27 unique children are receiving treatment. Nevada estimates it will take up to 18 months to reach full provider capacity. Because Nevada's program is new, it has not had time to analyze claims to review the impacts of coverage on ancillary services, total costs per child, or actual hours of services per week a child received.

The Division of Health Care Financing and Policy (the Division) worked closely with stakeholders and the Autism Treatment Assistance Program (ATAP) to develop a wide-ranging Medicaid medical coverage policy, provider qualifications, and reimbursement rates for ABA through a transparent public workshop process. The Center for Disease Control and Prevention (CDC), the American Academy of Pediatrics (AAP), and Behavior Analyst Certification Board's practice guidelines were all used as guiding principles for the NV Medicaid ABA services. [39]

Coverage Policy

Under Nevada Medicaid, a child under the age of 21 is covered for a diagnosis of ASD, assessments, evaluations, individual interventions, and family treatment. The coverage of intervention treatment is based on the child's medical necessity and individual needs. There are no co-pays, annual or lifetime

[37] Medicaid.gov, Medicaid & CHIP in Nevada: Managed Care Profile; https://www.medicaid.gov/medicaid/by-state/stateprofile.html?state=nevada

[38] Shannon Sprout, Chief of Clinical Policy Team, Division of Health Care Financing and Policy, Nevada Medicaid

[39] Nevada Dept of Health and Human Services, Division of Health Care Financing and Policy, "ABA Summary Document" (Oct 27, 2015); http://dhcfp.nv.gov/Pgms/CPT/ABA/

limitations. Services can be provided in a clinic, community setting, in the home, and through telehealth. All services include the parent, guardian or caregiver in treatment interventions.

Providers

ABA services involve a team of providers. The providers qualified to perform services include Licensed Psychologists, Licensed Behavior Analysts (BCBA), Licensed Assistant Behavior Analysts (BCaBA), and Registered Behavior Technicians (RBT). This model allows for quality of care, access to services, services that meet the level of care for the individual. Coverage of services includes therapeutic supervision of RBT's by BCBA's. The RBT is a newly credentialed profession from the National Behavior Analyst Certification Board that began in 2014. The growth of this provider group across the nation is in process. In Nevada, from November 2014 to today, credentialed RBTs have increased from zero to 113. However, it is important to note that the provision of service from the RBT providers is directly limited by the number of available BCBA's that can provide therapeutic supervision. Nevada currently has approximately 53 BCBA's licensed in Nevada, based on the ratio of BCBA available to supervise an RBT there is not enough capacity to serve the number of children in Nevada diagnosed with ASD.

Workforce Development

The ability to improve access to ABA services will require workforce development at all levels of the licensed professional providers. The Behavior Analyst Certification Board holds BCBA and BCaBA exams quarterly to credentials individuals with the appropriate education and experience. Once the credentialing has been approved with the Behavior Analyst Certification Board the individual can apply for Nevada licensure. The Nevada Board of Psychological Examiners has increased the frequency of the state exam for licensing from quarterly to every other month; this will assist with the capacity building for the BCBA and BCaBA level of professionals. The Behavior Analyst Certification Board is working on expanding the registry to include a subset of Psychologists who may provide supervision. Nevada Medicaid ABA provider qualifications include Licensed Psychologists, which will also assist in building supervision and capacity.

The Division has expanded outreach efforts to nearby states for qualified ABA providers and will work with licensing boards in Nevada to attract masters' level professionals that would qualify for BCBA credentialing and licensure in Nevada. In an effort to look at access to care and growth of qualified ABA providers the Division reached out the higher education systems in Nevada to evaluate the number of master level students in the Behavior Analyst pipeline that will graduate in the next year.

Reimbursement

The reimbursement rates evaluated across the nation included rates from other state Medicaid programs and commercial insurance. There are many variables in the coverage, hours of intervention and provider qualifications that had to be factored in this comparison. ABA rates were determined using the average wage information submitted by three (3) Nevada ABA providers and Nevada and National recruitment ads. The rate also allows for normal cost of business, and for administrative supervision. Nevada Medicaid's reimbursement rate for ABA ranges from $29.61 to $140.38 depending on the level of provider qualifications. The Division estimates that 67 percent of the Medicaid population is served

by Managed Care Organizations (MCO). The reimbursement rates set for ABA services are for Fee-For-Service (FFS), Managed Care negotiates their own rates during the credentialing process.

Medicaid Provider Enrollment

The Division has worked closely with all the FFS and MCO organizations for recruitment of providers. Nevada Medicaid ABA provider enrollment is currently in process, and as of October 2015 there are six (6) group providers enrolled, six (6) BCBA's enrolled and two (2) psychologists. Applications have been submitted for an additional three (3) groups, four (4) BCBA's, two (2) psychologists, and six (6) RBT's that still need to submit additional information.

The Division monitors enrollment daily and is engaging in targeted outreach. The outreach includes provider enrollment events held in June, the Medicaid Annual Conference in October, calls to ABA providers, calls with out-of-state providers with interest in moving to Nevada, and current Medicaid providers looking to expand their provider pool and qualifications to perform ABA services. The targeted outreach continues to identify providers that are in the process of recruiting, credentialing and licensing. Due to the time this process takes these providers will not be ready to enroll immediately, however the steps taken today will increase capacity in the months to come. The provider capacity building identified for ABA providers is similar to other new services and provider groups in Nevada, and aligns with the increase in demand for ABA providers across the nation.

Transitioning Children

Nevada's Aging and Disabilities Services Division (ADSD) administers the Autism Treatment Assistance Program (ATAP) in Nevada. ATAP was created to assist parents and caregivers with the expensive cost of providing autism-specific treatments to their child with ASD. ATAP provides a monthly allotment to pay for on-going treatment development, supervision and a limited amount of weekly intervention hours based upon a child's individual treatment plan, age, and income. Individuals who reside in the State of Nevada who are under age 19 and are diagnosed as a person with an Autism Spectrum Disorder by a physician, psychologist, child/adolescent psychiatrist, pediatric neurologist or other qualified professional are eligible for ATAP. ATAP uses ABA techniques for increasing useful behaviors and reducing those that may be harmful or that interfere with learning, in order to address socially important problems, and to bring about meaningful behavior change.[40]

ADSD has worked closely with Nevada Medicaid through the development of ABA services. ADSD estimates that approximately 51% of children on ATAP will qualify for Nevada Medicaid. For continuity and consistency of care ATAP is working with their current providers to help with the Nevada Medicaid enrollment process. Children who are currently receiving ATAP will continue to receive services until their provider becomes enrolled in Nevada Medicaid. Families receiving ATAP services under a provider who does not wish to enroll in Nevada Medicaid will work with their ATAP care manager to transition to

[40] Nevada Dept of Health & Human Services, Aging and Disability Services Division, "Disability Services - Autism Treatment Assistance Program (ATAP)"; http://adsd.nv.gov/Programs/Autism/ATAP/ATAP/

a Nevada Medicaid provider. The goal of ATAP is to have all children who qualify for Nevada Medicaid to be accessing ABA services under a Nevada Medicaid provider by June 30, 2016.

Texas

Texas Medicaid provides medical coverage to almost four million low-income individuals. Half of all children in Texas and two-thirds of people in nursing homes receive health insurance coverage through Texas Medicaid.[41] The program is administered by the Health and Human Services Commission (HHSC), whose annual operating budget for Medicaid programs in SFY2016 was approximately $28 billion.[42]

Most members who are receiving Medicaid benefits in Texas receive services through a managed care delivery model. As of August 2014, the number of Medicaid managed care members represented 3.2 million of the state's 3.9 million Medicaid clients.[43]

Texas was an early adopter of enacting ASD insurance reform. A law passed in 2007 (HB 1919) required certain health benefit plans to begin covering services for individuals with an ASD diagnosis. The law was expanded in 2009 (HB 451) and again in 2013 (SB 1484) for health benefit plans, but did not include Medicaid. [44]

The laws passed in Texas require health carriers to cover the following services for ASD: evaluation and assessment services, ABA, behavior training and behavior management, PT, OT, ST, and medications or nutritional supplements.

SB 1484 removed the age limit on coverage for the treatment of ASD. "*However, in order to be eligible for coverage the individual must have been diagnosed with ASD prior to age 10. There is no limit on benefits for individuals under 10 years of age. Coverage for ABA is subject to a maximum annual benefit of $36,000 for individuals age 10 or older."* [45]

In 2015, during the 84th Texas Legislature, a bill to license BCBAs failed to pass. *Opponents of the bill were concerned that qualification for licensure did not require the same level of training and experience as similar professions.* Texas currently has no state licensure process to allow a provider to bill Medicaid for work done by people they supervise. However, Texas has approximately 900 providers with national

[41] Texas Health and Human Services, "About Medicaid and CHIP"; https://hhs.texas.gov/services/health/about-medicaid-and-chip
[42] Texas Health and Human Services Commission, Operating Budget for Fiscal Year 2016 (December 1, 2015); https://hhs.texas.gov/sites/hhs/files/basic_page/2016-operating-budget.pdf
[43] Texas Health and Human Services, Texas Medicaid and CHIP in Perspective: 10th Edition, Chapter 1; https://hhs.texas.gov/node/41891
[44] Autism Speaks, "State Initiatives: Texas"; https://www.autismspeaks.org/advocacy/state/texas
[45] Autism Speaks, "Frequently Asked Questions about the Texas Autism Insurance Law"; https://www.autismspeaks.org/sites/default/files/docs/gr/faqs.tx_.pdf

accreditation as BCBA. Legislation to license BCBAs will likely be reintroduced during the 85th Texas Legislative Session that convenes Jan. 10, 2017.[46]

While health benefit plans in the state of Texas are required to cover ABA, Texas Medicaid is not currently providing ABA. Legislators and Texas Health and Human Services officials have discussed how the state could add behavioral therapy to standard Medicaid coverage for children with autism. But that stopped after the Legislature last year did not pass a bill to license behavioral therapists. Legislators opposed licensure for several professions, saying it was overregulation.

Texas Medicaid has referenced the CMS July 2014 bulletin as the guidance used on service inclusions in the state's coverage for ASD. Texas Medicaid does not cover applied behavioral therapy because it was listed as only one of several treatments available under Medicaid.[47]

In early 2016, a complaint against the state of Texas was submitted by a member to CMS with a request for assistance and intervention. As of this report, CMS and federal officials are discussing the behavioral therapy issue with Texas officials.

Utah

The Utah Department of Health (DOH), Division of Medicaid and Health Financing (DMHF) administers Medicaid and the Children's Health Insurance Program (CHIP) to provide medical, dental and behavioral health services to needy individuals and families throughout the state. DOH is designated as Utah's Single State Agency for Medicaid. The administration of Medicaid and CHIP is accomplished through the office of the Division Director and six bureaus. The Division Director administers and coordinates the program responsibilities delegated to develop, maintain, and administer the Medicaid program in compliance with Title XIX of the Social Security Act and CHIP in compliance with Title XXI of the Act, the laws of the state of Utah, and the appropriated budget.

In response to concerns that the Utah Medicaid growth rates exceeded the state's annual revenue growth rate for the past two decades and concerns about the long-term sustainability of the Medicaid program, SB 180, Medicaid Reform, was passed during the General Legislative Session in 2011. In part, the bill requires that: "The Department shall develop a proposal to amend the State Plan for the Medicaid program in a way that maximizes replacement of the fee for service delivery model with one or more risk-based delivery models."[48]

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[46] Texas Council for Developmental Disabilities; Update: Autism Services in Texas (July 15, 2015); http://tcdd.texas.gov/texas-autism-services-jul15updates/

[47] Kaiser Health News, Kate Harrington, "Texas Denies Medicaid Coverage for an Autism Therapy" (June 17, 2016); https://www.texastribune.org/2016/06/17/texas-denies-medicaid-coverage-autism-therapy/

[48] Utah Dept of Health, 2015 Utah Annual Report of Medicaid & CHIP; https://medicaid.utah.gov/Documents/pdfs/annual%20reports/medicaid%20annual%20reports/MedicaidAnnualReport_2015.pdf

To achieve these goals, the Division implemented Accountable Care Organizations (ACOs) effective January 2013. All managed care contracts are full-risk, capitated contracts and therefore assume the risk for all health care costs for their members.

Utah's Division of Medicaid and Health Financing had total expenditures of $2,543,770,800 for SFY2015. As of July 1, 2014, Utah's program served 287,754 members, with the majority receiving care through ACOs.[49]

Medicaid Autism Waiver Program[50]

This program serves children with autism spectrum disorders, age 2 through 6 years primary service provided in this program is ABA. ABA involves teaching skills that facilitate development by breaking the skill into small parts and working on one sub-skill at a time until mastery is achieved. ABA services are provided primarily in the child's home. The DHS Division of Services for People with Disabilities oversees the day-to-day operations and Division of Medicaid and Health Financing (DMHF) provides the state funding for the program.

The Utah Division of Medicaid and Health Financing reports the Autism Waiver Program served approximately 300 children in FY2015 and the program had one open enrollment during FY2015 where 25 new children were enrolled.[51] The Division also reports the use of standardized evaluation tools show outcomes were extremely positive in both verbal and behavioral trajectories for the enrolled participants receiving ABA therapy.

Preliminary work in developing the waiver was conducted in 2010 through a piece of legislation, HB-184. This legislation required the Medicaid agency to develop a range of options to serve individuals with autism. The range of options was developed in consultation with key stakeholders with specialized knowledge of autism and reported to the Utah Legislature's Health and Human Services Interim Committee in the fall of 2010. The development of a Medicaid waiver was one of the recommended options resulting from this study.

During the 2012 Legislative session, an autism services pilot program bill was passed (HB 272).[52] The bill requires services to be provided to children with autism spectrum disorders through three different pilot programs:

[49] Centers for Medicare & Medicaid Services, Medicaid Managed Care Enrollment and Program Characteristics, 2014; https://www.medicaid.gov/medicaid-chip-program-information/by-topics/data-and-systems/medicaid-managed-care/downloads/2014-medicaid-managed-care-enrollment-report.pdf

[50] Utah Dept of Health, 2015 Utah Annual Report of Medicaid & CHIP; https://medicaid.utah.gov/Documents/pdfs/annual%20reports/medicaid%20annual%20reports/MedicaidAnnualReport_2015.pdf

[51] Utah Dept of Health, 2015 Utah Annual Report of Medicaid & CHIP; https://medicaid.utah.gov/Documents/pdfs/annual%20reports/medicaid%20annual%20reports/MedicaidAnnualReport_2015.pdf

[52] Utah Dept of Health, Utah Medicaid Autism Waiver; http://health.utah.gov/autismwaiver/

1. A Public Employees Health Plan (PEHP) Pilot – this is a pilot program for a limited number of state employees' children with autism spectrum disorders;

2. Autism Treatment Account – the bill amended this previously existing account and appropriated one-time funding for use in a two-year pilot program; and

3. Medicaid Autism Waiver - requires the Utah Department of Health to apply for a new Medicaid waiver program to provide services to children with autism spectrum disorders (ASD.) The following will focus on the design of Medicaid's two-year, pilot program (the waiver.)

HB 272 provides definitive policy direction to the Department of Health (Department) on many aspects of the waiver including:

- assuring that children in rural and underserved areas of the state are among those who receive services;
- describing that children ages two through five years old are eligible for services;
- requiring the children are enrolled through an open enrollment process;
- and requiring that services provided have "demonstrated effectiveness."

In October 2013, the department was required to report to the Legislature on the outcomes and effectiveness of the pilot waiver program. The bill also had a set funding appropriation which projected services to be provided to an ongoing average of 200 children throughout the pilot period. The funding appropriation guided the development of a limited service package that balances the need to assure effective treatment outcomes with the ability to serve as many children as possible. Another bill passed in 2014, HB88, picked up some of the slack, making Utah's autism "lottery" permanent. Lawmakers approved the $2 million measure, which projected providing ABA therapy to about 270 autistic children through a lottery run by Utah's Medicaid program.[53]

The state held a lottery system for parents with Medicaid to receive a waiver for autism treatments to be covered for their children.[54] The department allocated available openings into the waiver on a statewide basis using Utah population distribution information from the 2010 US Census. The Utah Autism Waiver Program served approximately 300 children in FY2015. During the four open enrollment periods between October 2012 and November/December 2014 a total of 1,233 applications were received. 98 applicants were ineligible due to age, lack of a valid ASD diagnosis or decided not to participate. The waiver has served more than 400 children, 80 percent of whom were boys.[55] The Utah Medicaid Autism Waiver expenditures were $929,700 in 2013, $5,380,100 in 2014, and $6,027,000 in

[53] http://archive.sltrib.com/story.php?ref=/sltrib/news/57682702-78/autism-utah-health-coverage.html.csp
[54] The Salt Lake Tribune, Kirsten Stewart, "Who will Utah autism insurance mandate help, leave out?" (March 18, 2014); http://www.heraldextra.com/special-section/autism/autism-in-utah-wide-spectrum-long-waitlists/article_90071e9e-236b-5204-a959-84c6afc1585e.html
[55] Utah Dept of Health, Division of Medicaid and Health Financing, "Report to the Health and Human Services Interim Committee: Medicaid Autism Waiver" (November 2015); https://medicaid.utah.gov/Documents/pdfs/legislative%20reports/hhs%20services/AutismWaiver11-15.pdf

2015.[56] For SFY2015 the typical service and administrative cost per child was $1,600 per month or $19,193 per year.[57]

Policy Changes to EPSDT

The CMS July 7, 2014, Information Bulletin, *Clarification of Medicaid Coverage of Services to Children with Autism*, led the department to amend the HCBS Waiver to remove ASD –related services and implement the ASD-related services program for EPSDT-eligible individuals (effective July 2015). The Medicaid Autism Waiver had been in operation since Oct. 1, 2012 and covered children with ASD, age 2 to 6. The waiver was amended to remove ABA services effective Oct. 1, 2015. The existing enrollees will be allowed to age out of the program, with the last remaining until 2020. There will not be additional enrollments and the Department plans to sunset the Waiver. Meanwhile, the Department implemented the ASD-related services program for ESPDT-eligible individuals in July 2015. The benefit opens ABA services to all EPSDT-eligible individuals under 21 who meet the ASD-related services requirements. The services are fee-for-service and must be prior authorized.[58]

Providers

HB 2962 references the type of provider and the level of education needed to render ABA services. This includes a Board Certified Behavior Analyst (BCBA) or by a licensed doctoral-level psychologist. Furthermore, the new law stipulates that ASD must be diagnosed by a licensed physician or a licensed doctoral-level psychologist.

As previously mentioned, a law passed in 2009 directed the DHS DDS division to provide for licensing of Board Certified Behavior Analysts (BCBA) and certification of Board Certified Assistant Behavior Analysts (BCaBA) based on completion of national ABA certification requirements.[59]

As of Dec. 1, 2016, DHS has 64 licensed BCBAs. 14 of the 64 licensed by DHS reside out of state.[60] The Oklahoma State Board of Examiners of Psychologists has more than 600 licensed doctoral-level psychologists, as of November 2016.[61] However, not all licensed psychologists are currently practicing

[56] Utah Dept of Health, 2015 Utah Annual Report of Medicaid & CHIP; https://medicaid.utah.gov/Documents/pdfs/annual%20reports/medicaid%20annual%20reports/MedicaidAnnualReport_2015.pdf

[57] Utah Dept of Health, Division of Medicaid and Health Financing, "Report to the Health and Human Services Interim Committee: Medicaid Autism Waiver" (November 2015); https://medicaid.utah.gov/Documents/pdfs/legislative%20reports/hhs%20services/AutismWaiver11-15.pdf

[58] Utah Dept of Health, Division of Medicaid and Health Financing, "Report to the Health and Human Services Interim Committee: Medicaid Autism Waiver" (November 2015); https://medicaid.utah.gov/Documents/pdfs/legislative%20reports/hhs%20services/AutismWaiver11-15.pdf

[59] 59 O.S. § 1928

[60] Oklahoma DHS, List of Oklahoma Licensed BCBAs and Certified BCaBAs; http://www.okdhs.org/services/dd/pages/oblbcba.aspx

[61] Oklahoma Board of Examiners of Psychologists, License Renewal, Psychologist Search; https://pay.apps.ok.gov/OSBEP/_app/search/index.php

and treating patients with ASD. According to the OSDH, there is currently a six-month to one-year wait list for an evaluation by a licensed psychologist in the OKC Metro area.

Providers, specifically BCBAs, seeking training and education in the state of Oklahoma have access to two accredited programs at the University of Central Oklahoma and the University of Oklahoma.[62] The University of Central Oklahoma program provides coursework and some fieldwork supervision; the University of Oklahoma-Norman program, in collaboration with the University of Oklahoma Health Sciences Center, offers coursework and supervised field work opportunities.[63] Completion of coursework is required for an individual to be eligible to sit for the BCBA certification exam. Access to the program is limited to approximately 40 students combined at both programs.

Online certification programs provide another option. However, an additional obstacle is the requirement for supervision by a BCBA while completing required field work hours. A limited number of Oklahoma-based BCBAs provide supervision for students completing coursework. This further impacts the ability to attract credentialed providers to Oklahoma.

The partnering agencies included in this report contract with providers of varying educational backgrounds for the ASD services offered to individuals (birth through age 20).

With health benefit plans and the Oklahoma Employees Health Insurance Plan implementing portions of HB 2962 on Nov. 1, 2016, the limitation and access to eligible providers could be alleviated in the future. However, at this time the state has a finite number of eligible providers. Other states offering ABA treatment have seen an increase in the number of BCBAs following passage of similar legislative insurance mandate.

Estimated Cost of ABA Coverage

A significant element of this report requires the estimate of the potential costs to the state if ABA treatment for ASD is offered in public health programs. This section estimates potential provider reimbursement rates by looking at other government health programs offering services (TriCare), as well as estimating the potential participation rate from members.

Under HB 2962, caps were put into the law that limits ABA services to $25,000 per individual per year for health benefit plans and the Oklahoma Employees Health Insurance Plans. While caps and utilization controls such as prior authorizations can be applied to specific Medicaid programs and services, CMS requires coverage based on medical necessity and monetary limits cannot be applied.

[62] The University of Oklahoma Jeannine Rainbolt College of Education, Educational Psychology, "Masters in Special Education with Applied Behavior Analysis (ABA) Emphasis"; http://www.ou.edu/education/edpy/special-education/masters/MasterswithAppliedBehaviorAnalysisEmphasis.html; and,
The University of Central Oklahoma, Board Certified Behavior Analysis; http://www.uco.edu/ceps/dept/Professional-Studies-Programs/psy/BCBA/index.asp

[63] Oklahoma Autism Network, "ConnectedKids" (March 31, 2014); http://okautism.org/about/connectkids.asp

The estimated budget impact included in this section was based on the unique number of SoonerCare members with claims of ASD as a diagnosis for a date of service in SFY2016, birth through age 20, at the time of the date of service. (Claims data was retrieved in October 2016.) The ABA services estimated in this budget impact would be in addition to the ASD services already offered to the SoonerCare members, not in lieu of.

There is no standard application to determine the percentage of members diagnosed with ASD that might benefit from ABA therapy. There are recommendations that the earlier treatment is initiated, the probability of it benefitting increases; the intensity of services is recommended to be higher when initiated early.

There were 4,437 unique members, birth through age 20 in SFY16, with one or more paid claims; of those, 74 were birth-2; 2,215 were ages 3-9; and 2,148 were ages 10-20.

Based on the Tricare ABA Maximum Allowed Amounts for spring 2016 (for BCBA provider level doctorate/masters, per HB 2962), for the state of Oklahoma, the table below reflects the average estimated cost of care to a member for 16 hours of ABA services weekly.[64] On average, typical ABA treatment plans indicate services are 15 to 20 hours weekly. The plan is individualized and could be more or less, based on the member's needs.

CPT CODE	DESCRIPTION OF SERVICE		RATE	WEEKLY COST
0359T	Initial Behavior ID Assessment by **Physician**	1 unit annually	$441.50	$441.50
0360T/0361T	Observational Behavior Assessment by Physician/Technician	4 hours/week	$106.26	$425.04
0364T/0365T	Adaptive Behavior Treatment by Technician	4 hours/week	$106.26	$425.04
0368T/0369T	Adaptive Behavior Treatment by **Physician**	4 hours/week	$106.50	$426.00
0370T	Family Adaptive Behavior Guidance	4 hours/week	$106.25	$425.00

[64] TriCare: Applied Behavior Analysis Maximum Allowed Amounts (April 25, 2016); http://www.health.mil/abarates

Based on the average member, receiving an annual evaluation for ABA services and weekly ABA treatments of 16 hours per week, the annual cost per member could be:

Annual Assessment ($441.50) + 16 hours weekly ($1,701.08) x 52 weeks = $88,456 = $88,898 annually

Assuming that not all SoonerCare members with an ASD diagnosis would qualify for ABA services, OHCA projects that if only 10 percent of current SoonerCare members with an ASD diagnosis, age birth through 20, qualified for 16 hours weekly of ABA services for 52 weeks, that would be 443 members x $88,898 = **$39,381,814** (state and federal dollars needed, based on the TriCare rate). Again, this budget impact estimates new services for members with ASD. ABA services would not be in lieu of current behavioral and medical treatments already provided.

In SFY2010, there were 1,518 unique members birth through age 20 with a diagnosis of ASD on a paid claim. The count of SoonerCare members with ASD has continued to increase each SFY, peaking in SFY2016 with 4,437 members, which is a 292 percent increase over a six-year period. The overall SoonerCare population during this same time period only saw a marginal increase in total child enrollment. It's important to consider those members across Oklahoma that may not have been diagnosed with ASD yet. With ASD diagnosis on the rise, it could result in an additional budget impact.

Historically, the SoonerCare program experiences slight increases to other related treatments when new services become available. With additional members diagnosed with ASD, ancillary costs could be expected to increase. For SFY16, Psychotherapy, Psychological Testing, PT, OT, ST and other services for children with ASD (birth through age 20) totaled $7,760,709. An additional 10 percent increase of these ancillary services could be **$776,071.**

Administratively, the OHCA will need additional FTE for implementation and oversight of this program. If ABA treatment is offered in Oklahoma, depending on the number of lives covered in SoonerCare at that time, an estimate for administrative costs could be ascertained.

Modeling the estimated administrative costs after other state experiences, in SFY2015 the state of Louisiana was appropriated $3.7 million for administrative implementation and oversight of the ABA program, which equates to $4.97 per child.[65] Methodology used to determine the administrative implementation cost took the total children enrolled in LA Medicaid (regardless of ASD diagnosis), which in SFY2015 was 744,371.[66] Based on the Louisiana methodology, funding for administration in Oklahoma could be at least **$2,579,584** (519,031 x $4.97) for program oversight.

[65] Louisiana Department of Health and Hospitals, Medicaid BH Medical Director: James Hussey, M.D. "Louisiana Medicaid Program Applied Behavior Analysis (ABA) Services" (Oct 20, 2015) http://www.nashp.org/pioneering-behavioral-health-treatment-and-therapy-state-approaches-to-providing-coverage-for-aba/

[66] Louisiana Department of Health, Medicaid Children's Enrollment by Parish for 2014; http://dhh.louisiana.gov/index.cfm/page/719

For all members, birth through age 20 with an ASD diagnosis in SFY2016 using the Spring 2016 TriCare rates for computation purposes, the estimated cost could be:

	State	Total
Administrative Costs =	**$1,289,792**	**$2,579,584**
10% Increase in Ancillary Services =	**$321,526**	**$776,071**
ABA services, 4,437 x $88,898 =	**$163,416,668**	**$394,440,426**
	$165,027,987	**$397,796,081**

If only 10 percent of the SFY2016 population, birth through age 20, qualified for ABA services:

	State	Total
Administrative Costs =	**$1,289,792**	**$2,579,584**
10% Increase in Ancillary Services =	**$321,526**	**$776,071**
ABA services, 443 x $88,898 =	**$16,315,886**	**$39,381,814**
	$17,927,204	**$42,737,469**

Variance exists with probability of new members added for services which are not counted in the above calculation. Since ABA therapy is individualized and cannot uniformly apply the interventions to all persons with an ASD diagnosis, an assumption of 10 percent of the population was applied; however, the percentage of members with ASD that could benefit from ABA therapy is undeterminable. Cost savings associated with ABA therapy could be realized in the future due to the decreased need for institutionalized care of certain members; however, that amount cannot be determined without an actuarial review.

Conclusion

As the number of children diagnosed with ASD continues to increase, public health and education systems in Oklahoma will be called upon more frequently to provide treatment services. Oklahoma children with ASD receive distinctive services through a variety of health and education programs. Each agency included in this report strives to ensure the needs of children in Oklahoma are met, while balancing the limitations of state funding.

In trying to determine the most successful, yet cost-effective course of action for the future, OHCA and partnering agencies were pleased to collaborate and assist in compiling this report for leadership's review. The information presented in this report reflects the most current range of evidence specific to ABA for members with ASD, and demonstrates the impact this new service could have on Oklahoma's Medicaid program. The comprehensive analysis of the current public services available for Oklahoma children with ASD, as well as the comparison of other states approaches to serving their ASD populations, provided OHCA and partnering agencies with valuable insight for the future.

Appendices

Appendix A

An Act

ENROLLED HOUSE
BILL NO. 2962

By: Nelson, Denney, Kannady, Dunnington, Henke, Montgomery, Sherrer, McDaniel (Jeannie), Brown, Kouplen, Condit, Perryman, Cleveland, McBride, Casey, Roberts (Dustin), Kirby, Virgin, Rousselot, Cooksey, Lockhart, Cannaday, Stone, Murdock, Inman, Shelton, Griffith, Ownbey, Vaughan, Wallace, Fisher, Munson, Christian, Echols, Nollan, Wood, Loring, Bennett, Renegar, Lepak, Hoskin, Martin and Morrissette of the House

and

Griffin, Boggs, Thompson, Bass, David, Simpson, Crain, Matthews, Brooks, Fields, Bice, Floyd, Dossett and Pittman of the Senate

An Act relating to autism spectrum disorders; requiring certain coverage for certain treatments; specifying age and coverage limitations; prohibiting termination or refusal of coverage for certain reasons; stipulating limitations; providing certain construction; specifying maximum benefits under certain coverage; directing Oklahoma Insurance Commissioner to annually adjust certain limits; excluding certain payments from certain calculation; mandating inclusion of certain services; permitting insurers to review treatment plans; providing certain applications; requiring certain costs be borne by

insurer; providing certain exceptions; providing definitions; directing certain agencies to conduct certain examination; requiring certain report; directing Oklahoma Health Care Authority to submit certain documents under certain circumstances; providing limitations; providing definitions; amending 36 O.S. 2011, Section 6060.20, which relates to mandated coverage; deleting certain construction; providing exemptions under certain circumstances; specifying certain calculation; providing guidelines for issuance of exemptions; providing for codification; and providing an effective date.

SUBJECT: Autism spectrum disorders

BE IT ENACTED BY THE PEOPLE OF THE STATE OF OKLAHOMA:

SECTION 1. NEW LAW A new section of law to be codified in the Oklahoma Statutes as Section 6060.21 of Title 36, unless there is created a duplication in numbering, reads as follows:

A. For all plans issued or renewed on or after November 1, 2016, a health benefit plan and the Oklahoma Employees Health Insurance Plan shall provide coverage for the screening, diagnosis and treatment of autism spectrum disorder in individuals less than nine (9) years of age, or if an individual is not diagnosed or treated until after three (3) years of age, coverage shall be provided for at least six (6) years, provided that the individual continually and consistently shows sufficient progress and improvement as determined by the health care provider. No insurer shall terminate coverage, or refuse to deliver, execute, issue, amend, adjust or renew coverage to an individual solely because the individual is diagnosed with or has received treatment for an autism spectrum disorder.

B. Except as provided in subsection E of this section, coverage under this section shall not be subject to any limits on the number of visits an individual may make for treatment of autism spectrum disorder.

C. Coverage under this section shall not be subject to dollar limits, deductibles or coinsurance provisions that are less

favorable to an insured than the dollar limits, deductibles or coinsurance provisions that apply to substantially all medical and surgical benefits under the health benefit plan, except as otherwise provided in subsection E of this section.

D. This section shall not be construed as limiting benefits that are otherwise available to an individual under a health benefit plan.

E. Coverage for applied behavior analysis shall be subject to a maximum benefit of twenty-five (25) hours per week and no more than Twenty-five Thousand Dollars ($25,000.00) per year. Beginning January 1, 2018, the Oklahoma Insurance Commissioner shall, on an annual basis, adjust the maximum benefit for inflation by using the Medical Care Component of the United States Department of Labor Consumer Price Index for All Urban Consumers (CPI-U). The Commissioner shall submit the adjusted maximum benefit for publication annually before January 1, 2018, and before the first day of January of each calendar year thereafter, and the published adjusted maximum benefit shall be applicable in the following calendar year to the Oklahoma Employees Health Insurance Plan and health benefit plans subject to this section. Payments made by an insurer on behalf of a covered individual for treatment other than applied behavior analysis shall not be applied toward any maximum benefit established under this section.

F. Coverage for applied behavior analysis shall include the services of the board-certified behavior analyst or a licensed doctoral-level psychologist.

G. Except for inpatient services, if an insured is receiving treatment for an autism spectrum disorder, an insurer shall have the right to review the treatment plan annually, unless the insurer and the insured's treating physician or psychologist agree that a more frequent review is necessary. Any such agreement regarding the right to review a treatment plan more frequently shall apply only to a particular insured being treated for an autism spectrum disorder and shall not apply to all individuals being treated for autism spectrum disorder by a physician or psychologist. The cost of obtaining any review or treatment plan shall be borne by the insurer.

H. This section shall not be construed as affecting any obligation to provide services to an individual under an

individualized family service plan, an individualized education program or an individualized service plan.

I. Nothing in this section shall apply to nongrandfathered plans in the individual and small group markets that are required to include essential health benefits under the federal Patient Protection and Affordable Care Act, Public Law 111-148, or to Medicare supplement, accident-only, specified disease, hospital indemnity, disability income, long-term care or other limited benefit hospital insurance policies.

J. As used in this section:

1. "Applied behavior analysis" means the design, implementation and evaluation of environmental modifications, using behavioral stimuli and consequences, to produce socially significant improvement in human behavior, including the use of direct observation, measurement and functional analysis of the relationship between environment and behavior;

2. "Autism spectrum disorder" means any of the pervasive developmental disorders or autism spectrum disorders as defined by the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the edition that was in effect at the time of diagnosis;

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

a. necessary to develop, maintain or restore, to the maximum extent practicable, the functioning of an individual, and

b. provided by a board-certified behavior analyst or by a licensed doctoral-level psychologist so long as the services performed are commensurate with the psychologist's university training and experience;

4. "Diagnosis of autism spectrum disorder" means medically necessary assessment, evaluations or tests to diagnose whether an individual has an autism spectrum disorder;

5. "Health benefit plan" means any plan or arrangement as defined in subsection C of Section 6060.4 of Title 36 of the Oklahoma Statutes;

6. "Oklahoma Employees Health Insurance Plan" means "Health Insurance Plan" as defined in Section 1303 of Title 74 of the Oklahoma Statutes;

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

8. "Psychiatric care" means direct or consultative services provided by a psychiatrist licensed in the state in which the psychiatrist practices;

9. "Psychological care" means direct or consultative services provided by a psychologist licensed in the state in which the psychologist practices;

10. "Therapeutic care" means services provided by licensed or certified speech therapists, occupational therapists or physical therapists; and

11. "Treatment for autism spectrum disorder" means evidence-based care and related equipment prescribed or ordered for an individual diagnosed with an autism spectrum disorder by a licensed physician or a licensed doctoral-level psychologist who determines the care to be medically necessary, including, but not limited to:

a. behavioral health treatment,

b. pharmacy care,

c. psychiatric care,

d. psychological care, and

e. therapeutic care.

SECTION 2. NEW LAW A new section of law to be codified in the Oklahoma Statutes as Section 1011.12 of Title 56, unless there is created a duplication in numbering, reads as follows:

A. The Oklahoma Health Care Authority, in conjunction with the Department of Mental Health and Substance Abuse Services, the State Department of Health and the State Department of Education shall examine the feasibility of a state plan amendment to the Oklahoma

Medicaid Program for applied behavior analysis treatment of autism spectrum disorders.

B. On or before December 31, 2016, the Authority and partnering agencies shall submit a report to the President Pro Tempore of the Senate, the Speaker of the House of Representatives and the Governor estimating the potential costs to the state, clinical findings, reviews of pilot projects and research from other states on the effects of applied behavioral analysis treatment on autism spectrum disorders.

C. Beginning July 1, 2017, and subject to the availability of funding, the Authority and partnering agencies shall draft a state plan amendment for applied behavior analysis treatment of autism spectrum disorders. The provisions of this subsection shall only apply if the report required by subsection B of this section demonstrates applied behavioral analysis treatment to be evidence-based and essential to qualifying participants in the Oklahoma Medicaid Program.

D. As used in this section:

1. "Applied behavior analysis" means the design, implementation and evaluation of environmental modifications, using behavioral stimuli and consequences, to produce socially significant improvement in human behavior, including the use of direct observation, measurement and functional analysis of the relationship between environment and behavior;

2. "Autism spectrum disorder" means any of the pervasive developmental disorders or autism spectrum disorders as defined by the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the edition that was in effect at the time of diagnosis;

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

a. necessary to develop, maintain or restore, to the maximum extent practicable, the functioning of an individual, and

b. provided by a board-certified behavior analyst or by a licensed doctoral-level psychologist so long as the services performed are commensurate with the

psychologist's university training and supervised experience; and

4. "Treatment for autism spectrum disorder" means evidence-based care and related equipment prescribed or ordered for an individual diagnosed with an autism spectrum disorder by a licensed physician or a licensed doctoral-level psychologist who determines the care to be medically necessary, including, but not limited to:

a. behavioral health treatment,

b. pharmacy care,

c. psychiatric care,

d. psychological care, and

e. therapeutic care.

SECTION 3. AMENDATORY 36 O.S. 2011, Section 6060.20, is amended to read as follows:

Section 6060.20 A. All individual and group health insurance policies that provide medical and surgical benefits shall provide the same coverage and benefits to any individual under the age of eighteen (18) years who has been diagnosed with an autistic disorder as it would provide coverage and benefits to an individual under the age of eighteen (18) years who has not been diagnosed with an autistic disorder.

B. As used in this section, "autistic disorder" means a neurological disorder that is marked by severe impairment in social interaction, communication, and imaginative ~~plan~~ play, with onset during the first three (3) years of life and is included in a group of disorders known as autism spectrum disorders.

~~C. Nothing in this section shall be construed to require an insurer to provide any benefits for the diagnosis or treatment of any autistic disorder.~~

SECTION 4. NEW LAW A new section of law to be codified in the Oklahoma Statutes as Section 6060.22 of Title 36, unless there is created a duplication in numbering, reads as follows:

A. 1. A health benefit plan that, at the end of its base period, experiences a greater than one percent (1%) increase in premium costs pursuant to providing applied behavior analysis for treatment of autism spectrum disorders shall be exempt from the provisions of this act.

2. To calculate base-period-premium costs, the health benefit plan shall subtract from premium costs incurred during the base period, both the premium costs incurred during the period immediately preceding the base period and any premium cost increases attributable to factors unrelated to benefits for treatment of autism spectrum disorders.

3. a. To claim the exemption provided for in subsection A of this section a health benefit plan shall provide to the Insurance Commissioner a written request signed by an actuary stating the reasons and actuarial assumptions upon which the request is based.

b. The Commissioner shall verify the information provided and shall approve or disapprove the request within thirty (30) days of receipt.

c. If, upon investigation, the Commissioner finds that any statement of fact in the request is found to be knowingly false, the health benefit plan may be subject to suspension or loss of license or any other penalty as determined by the Commissioner, or the State Commissioner of Health with regard to health maintenance organizations.

SECTION 5. This act shall become effective November 1, 2016.

Passed the House of Representatives the 27th day of April, 2016.

Presiding Officer of the House of Representatives

Passed the Senate the 14th day of April, 2016.

Presiding Officer of the Senate

OFFICE OF THE GOVERNOR

Received by the Office of the Governor this 28th day of April, 2016, at 11:55 o'clock A M.

By: Audrey Rockwell

Approved by the Governor of the State of Oklahoma this 4th day of May, 2016, at 4:30 o'clock P M.

Governor of the State of Oklahoma

OFFICE OF THE SECRETARY OF STATE

Received by the Office of the Secretary of State this 4th day of May, 2016, at 4:40 o'clock P. M.

By: Chris Benge

Appendix B

SoonerCare claims data is displayed by the following criteria:

- Timeframe: SFY2010-SFY2016
- Total Reimbursement, procedure codes and modifiers and diagnosis codes
- Reimbursement and claim count is based on claims with a paid procedure or diagnosis code dealing with Autism
- Claim Criteria: Detail status code, Claim Amount filter, first date of service, final issue warrant date and procedure codes, valid IDs only, paid claims only
- Data Population: SoonerCare Members with a diagnosis on the autism spectrum
    - ICD 299.0 – 299.91: F84.0 - F84.9

Appendix C

SoonerStart: Services Provided ***(continued on p. 72)***

Service Provided	Number of Children and Ages	Setting/Ratio of Providers to Children	Average Hours a Day/Week	ABA provided?	Sources of Funding/ Reimbursement	Overall Cost of Service
Speech Therapy	Age range:Birth to 3rd birthday	Home/Natural Env; usually 1:1	Varies	No	Medicaid/IDEA C/inter-agency contracts	
Occupational Therapy	Age range:Birth to 3rd birthday	Home/Natural Env.; usually 1:1	varies	No	Medicaid/IDEA-C/inter-agency contracts	
Psychological Services	Age range:Birth to 3rd birthday	Home/Natural Env.; usually 1:1	varies	No	Medicaid/IDEA-C/inter-agency contracts service	
Developmental/Behavioral Interventions	Age range:Birth to 3rd birthday	Home/Natural Env.; usually 1:1	varies	Yes (limited)	Medicaid/IDEA-C/inter-agency contracts	

Autism specific screening (Since 2008 SoonerStart began screening for ASD all SoonerStart eligible toddlers)	All children in SoonerStart are screened at 18mo for ASD Level I and II screening	Clinic/1:1	N/A	N/A		
Early Foundations: Autism Model and Outreach Project	28 children/~20mo to 48mo	Early Learning and Care Center/1:1	17 Hours/ weekly	Yes	1.State Department of Education 2.State Health Department 3.Local Health Dept. 4. Private donations	≈$100,000 per year (for 6 children)
**Trumpet Behavioral Health/Autism PRO (see description below)	86 active cases/18mo-36mo	Home	Parent Implemented	Can be but majority of providers are not using behavioral option	Health Department	

SoonerStart: Service Providers

Service Provider	Total Number of Providers	Credentials/Level of Education	Is a list of providers who can provide ABA available?	College Programs in OK or Other States that are Educating Providers
Speech Language Pathologist	46	Licensed SLP/ Master's Level	No	State Universities
Occupational Therapist	14	Licensed OT/Master's	No	
Physical Therapist	14	Licensed PT/Master's	No	
Psychological Clinician	7	State-credentialed Psychologist/Master's and PhD	No	
Child Developmental Specialist	26	Certificated Child & Parenting Specialist/Master's	No	
Nurse	16	RN/Bachelors	No	
Deaf and Hard of Hearing/Vision Specialist	4.6	OSDE Special Education Certificate/Master's	No	
Clinical social worker	2.5	Licensed LCSW/Master's	No	
Special Educator	2.0	OSDE Special Education certificate/Master's or Bachelor's	No	
Board Certified Behavior Analyst (BCBA)	2 (2) who are eligible to sit for exam	BCBA-D (Doctoral level) BCBA/Master's *At Early Foundations program only.	No	UCO, OU Norman, OSU

Child Guidance: Services Provided

Service Provided	Number of Children and Ages	Setting/Ratio of Providers to Children	Average Hours a Day/Week	ABA provided?	Sources of Funding/ Reimbursement	Overall Cost of Service
Speech/Language Treatment	0-13 years 1,694 unduplicated children	Individual clinic based Health Dept. Statewide #	24,206 visits	No data	Fee for service Medicaid-EPSDT	
BH Counseling w/o client present	0-13 years 415 unduplicated children	Individual clinic based Health Dept. Statewide #	689 visits	No data	Fee for service Medicaid-EPSDT	
BH Counseling w/ client present	0-13 years 1,047 unduplicated children	Individual clinic based Health Dept. Statewide #	5,983 visits	No data	Fee for service Medicaid-EPSDT	
Child Development Intervention	0-8 years 1,170 Unduplicated children	Individual clinic based Health Dept. Statewide #	5,600 visits	No data	Fee for service Medicaid-EPSDT	

Child Guidance: Service Providers

Service Provided	Total Number of Contracted Providers	Providers' Credentials/Level of Education	Is a list of providers who can provide ABA available?	College Programs in OK or Other States that are Educating Providers
Speech Language Pathology	Child Guidance employees = 12	Master's Level Certified by the American Speech Language Hearing Association and State Licensed	N/A	5 Graduate Programs in Oklahoma for Speech/Language Pathology
Behavioral Health Clinicians	Child Guidance employees = 21	Master's Level Licensed clinicians	N/A	13 Graduate Programs in Oklahoma for Psychology
Child Development Specialists	Child Guidance employees = 17	Master's Level clinicians with Certified Child Parenting Specialists (OFRC)	N/A	8 Graduate Programs in Oklahoma for Early Childhood or Child Development

Appendix D

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop S2-26-12
Baltimore, Maryland 21244-1850

CMCS Informational Bulletin

DATE: July 7, 2014

FROM: Cindy Mann, Director
Center for Medicaid and CHIP Services

SUBJECT: **Clarification of Medicaid Coverage of Services to Children with Autism**

In response to increased interest and activity with respect to services available to children with autism spectrum disorder (ASD), CMS is providing information on approaches available under the federal Medicaid program for providing services to eligible individuals with ASD.

Background

Autism spectrum disorder is a developmental disability that can cause significant social, communication and behavioral challenges. A diagnosis of ASD now includes several conditions that used to be diagnosed separately: autistic disorder, pervasive developmental disorder not otherwise specified (PDD-NOS), and Asperger syndrome. These conditions are now all called autism spectrum disorder. Currently, the Center for Disease Control and Prevention (CDC) estimates that approximately 1 in 68 children has been identified with ASD. [1]

Treatments for children with ASD can improve physical and mental development. Generally these treatments can be categorized in four categories: 1) behavioral and communication approaches; 2) dietary approaches; 3) medications; and 4) complementary and alternative medicine. [2] While much of the current national discussion focuses on one particular treatment modality called Applied Behavioral Analysis (ABA), there are other recognized and emerging treatment modalities for children with ASD, including those described in the ASD Services, Final Report on Environmental Scan (see link below)[3]. This bulletin provides information related to services available to individuals with ASD through the federal Medicaid program.

The federal Medicaid program may reimburse for services to address ASD through a variety of authorities. Services can be reimbursed through section 1905(a) of the Social Security Act (the Act), section 1915(i) state plan Home and Community-Based Services, section 1915(c) Home

[1] http://www.cdc.gov/ncbddd/autism/facts.html
[2] http://www.cdc.gov/ncbddd/autism/treatment.html
[3] http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Long-Term-Services-and-Supports/Downloads/Autism-Spectrum-Disorders.pdf

and Community-Based Services (HCBS) waiver programs and section 1115 research and demonstration programs.

State Plan Authorities

Under the Medicaid state plan, services to address ASD may be covered under several different section 1905(a) benefit categories. Those categories include: section 1905(a)(6) - services of other licensed practitioners; section 1905(a)(13)(c) - preventive services; and section 1905(a)(10) - therapy services. States electing these services may need to update the Medicaid state plan in order to ensure federal financial participation (FFP) is available for expenditures for these services. In addition, for children, as discussed below, states must cover services that could otherwise be covered at state option under these categories consistent with the provisions at 1905(a)(4)(B) for Early and Periodic Screening, Diagnostic and Treatment services (EPSDT). Below is information on these coverage categories for services to address ASD. Under these section 1905(a) benefit categories all other state Medicaid plan requirements such state-wideness and comparability must also be met.

Other Licensed Practitioner Services

Other Licensed Practitioner services (OLP) services, defined at 42 CFR 440.60, are "medical or remedial care or services, other than physicians' services, provided by licensed practitioners within the scope of practice as defined under State law." If a state licenses practitioners who furnish services to address ASD, the state may elect to cover those providers under this section of their state plan even if the providers are not covered under other sections of the plan (e.g., physical therapist, occupational therapist, etc.). A state would need to submit a state plan amendment (SPA) to add the new licensed provider to their Medicaid plan. The SPA must describe the provider's qualifications and include a reimbursement methodology for paying the provider.

In addition, services that are furnished by non-licensed practitioners under the supervision of a licensed practitioner could be covered under the OLP benefit if the criteria below are met:

- Services are furnished directly by non-licensed practitioners who work under the supervision of the licensed practitioners;
- The licensed provider is able to furnish the service being provided;
- The state's Scope of Practice Act for the licensed practitioners specifically allows the licensed practitioners to supervise the non-licensed practitioners who furnish the service;
- The state's Scope of Practice Act also requires the licensed practitioners to assume professional responsibility for the patient and the service furnished by the unlicensed practitioner under their supervision; and
- The licensed practitioners bill for the service;

Preventive Services

Preventive Services, defined at 42 CFR 440.130(c) are "services recommended by a physician or other licensed practitioner of the healing arts within the scope of his practice under state law to—

(1) Prevent disease, disability, and other health conditions or their progression;
(2) Prolong life; and
(3) Promote physical and mental health and efficiency"

A regulatory change that took effect January 1, 2014, permits coverage of preventive services furnished by non-licensed practitioners who meet the qualifications set by the state, to furnish services under this state plan benefit as long at the services are recommended by a physician or other licensed practitioner. Under the preventive services benefit, in the state plan, the state must 1) list the services to be provided to ensure that services meet the definition of preventive services as stated in section 4385 of the State Medicaid Manual (including the requirement for the service to involve direct patient care); 2) identify the type(s) of non-licensed practitioners who may furnish the services; and 3) include a summary of the state's provider qualifications that make these practitioners qualified to furnish the services, including any required education, training, experience, credentialing, supervision, oversight and/ or registration.

Therapy Services

Physical therapy, occupational therapy and services for individuals with speech, hearing and language disorders, may be covered under the Medicaid therapies benefit at 42 CFR 440.110. Physical and occupational therapy must be prescribed by a physician or other licensed practitioner of the healing arts within the scope of his/her practice under state law and provided to a beneficiary by or under the direction of a qualified therapist. Services for individuals with speech, hearing and language disorders mean diagnostic, screening, preventive or corrective services provided by or under the direction of a speech pathologist or audiologist, for which a patient is referred by a physician or other licensed practitioner of the healing arts within the scope of his or her practice under state law.

States would need to include an assurance in the state plan that the state furnishes the therapy in accordance with 42 CFR 440.110. States would also need to describe the supervisory arrangements if a practitioner is furnishing the therapy under the direction of a qualified therapist. Finally, for audiology services, the state plan must reflect the supervision requirements as set forth at 42 CFR 440.110(c)(3).

Section 1915(i) of the Social Security Act

States can offer a variety of services under a section 1915(i) state plan Home and Community-Based Services (HCBS) benefit. The benefit may be targeted to one or more specific populations including individuals with ASD and can provide services and supports above and beyond those included in section 1905(a). Participants must meet state-defined criteria based on need and typically receive a combination of acute-care medical services (like dental services, skilled nursing services) and other long-term services such as respite care, supported employment, habilitative supports, and environmental modifications.

Other Medicaid Authorities

There are several other Medicaid authorities that may be used to provide services to address ASD. Below is a discussion of each of those authorities:

Section 1915 (c) of the Social Security Act

The section 1915(c) Home and Community-Based Services waiver program allows states to provide a combination of medical services and long-term services and supports. Services include

but are not limited to adult day health services, habilitation (both day and residential), and respite care. States can also propose "other" types of services that may assist in diverting and/or transitioning individuals from institutional settings into their homes and community. Participants must meet an institutional level of care but are served in the community. Section 1915(c) waiver programs also require that services be furnished in home and community-based settings. For individuals under the age of 21 who are eligible for EPSDT services, an HCBS waiver could provide services and supports for ASD that are above and beyond services listed in section 1905(a), such as respite care. Additionally, for individuals who are receiving state plan benefits as part of EPSDT that are not available to adults under the state plan, waiver services may be used to help these individuals transition into adulthood and not lose valuable necessary services and supports.

Section 1115 Research and Demonstration Waiver

Section 1115 of the Act provides the Secretary of the Department of Health and Human Services broad authority to authorize experimental, pilot, or demonstration programs that promote the objectives of the Medicaid program. Flexibility under section 1115 is sufficiently broad to allow States to test substantially new ideas, including benefit design or delivery system reform, of policy merit. The Secretary can approve an 1115 demonstration for up to five years, and states may submit extension requests to continue the program for additional periods of time. Demonstrations must be "budget neutral" over the life of the program, meaning they cannot be expected to cost the Federal government more than it would cost without the demonstration.

EPSDT Benefit Requirements

Section 1905(r) of the Act defines the EPSDT benefit to include a comprehensive array of preventive, diagnostic, and treatment services for low-income infants, children and adolescents under age 21. States are required to arrange for and cover for individuals eligible for the EPSDT benefit any Medicaid coverable service listed in section 1905(a) of the Act that is determined to be medically necessary to correct or ameliorate any physical or behavioral conditions. The EPSDT benefit is more robust than the Medicaid benefit package required for adults and is designed to assure that children receive early detection and preventive care, in addition to medically necessary treatment services, so that health problems are averted or diagnosed and treated as early as possible. All children, including children with ASD, must receive EPSDT screenings designed to identify health and developmental issues, including ASD, as early as possible. Good clinical practice requires ruling out any additional medical issues and not assuming that a behavioral manifestation is always attributable to the ASD. EPSDT also requires medically necessary diagnostic and treatment services. When a screening examination indicates the need for further evaluation of a child's health, the child should be appropriately referred for diagnosis and treatment without delay. Ultimately, the goal of EPSDT is to assure that children get the health care they need, when they need it – the right care to the right child at the right time in the right setting.

The role of states is to make sure all covered services are available as well as to assure that families of enrolled children, including children with ASD, are aware of and have access to a broad range of services to meet the individual child's needs; that is, all services that can be covered under section 1905(a), including licensed practitioners' services; speech, occupational,

and physical therapies; physician services; private duty nursing; personal care services; home health, medical equipment and supplies; rehabilitative services; and vision, hearing, and dental services.

If a service, supply or equipment that has been determined to be medically necessary for a child is not listed as covered (for adults) in a state's Medicaid State Plan, the state will nonetheless need to arrange for and cover it for the child as long as the service or supply is included within the categories of mandatory and optional services listed in section 1905(a) of the Social Security Act. This longstanding coverage design is intended to ensure a comprehensive, high-quality health care benefit for eligible individuals under age 21, including for those with ASD, based on individual determinations of medical necessity.

Implications for Existing Section 1915(c), Section 1915 (i) and Section 1115 Programs

In states with existing 1915(c) waivers that provide services to address ASD, this 1905(a) policy clarification may impact on an individual's eligibility for the waiver. Waiver services are separated into two categories: waiver services and extended state plan services. Extended state plan services related to section 1905(a) services are not available to individuals under the age of 21 (individuals eligible for EPSDT) because of the expectation that EPSDT will meet the individual's needs. There are therefore a limited number of services that can be provided to this age group under 1915 (c) waivers, primarily respite, and/or environmental/vehicle modifications.

For states that currently provide waiver services to individuals under age 21 to address ASD, the ability to provide services under the 1905(a) state plan may have the effect of making these individuals ineligible for the waiver unless another waiver service is provided. This implication is especially important for individuals with ASD who may not otherwise be eligible for Medicaid absent the (c) waiver. States need to ensure that these individuals are receiving a waiver service, not coverable under section 1905(a), to ensure that they do not lose access to all Medicaid services by losing waiver eligibility. Individuals age 21 and older may continue to receive services to address ASD through the waiver if a state does not elect to provide these services to adults under its Medicaid state plan.

The same issues arise for children under the 1915(i) authority, which allows for services above and beyond section 1905(a) to be provided under the state plan. CMS is available to provide technical assistance to states that currently have approved waivers or state plans that may be impacted by this clarification. Similarly, states with existing 1115 demonstrations authorizing reimbursement for services provided to children with autism should contact CMS to ensure that EPSDT requirements are met.

We hope this information is helpful. If you have questions please send them to AutismServicesQuestions@cms.hhs.gov.

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
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Medicaid and CHIP FAQs: Services to Address Autism

September 2014

On July 7, 2014, CMCS issued an Informational Bulletin (CIB) (see http://www.medicaid.gov/Federal-Policy-Guidance/Downloads/CIB-07-07-14.pdf) to provide information on approaches available under Medicaid for providing services to individuals with Autism Spectrum Disorder (ASD). In this CIB, CMS discussed the various authorities under which services to address ASD could be reimbursed including section 1905(a) of the Social Security Act (the Act). Services to address ASD can be covered under three benefit categories: Section 1905(a) (6) Other Licensed Practitioner (OLP), section 1905(a) (13) Preventive Services, and section 1905(a)(11) Therapies.

The informational bulletin also reviewed state obligations under section 1905(a)(4)(B) of the Act, the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit, where states must cover all medically necessary services for children, including services to address ASD.

Q1: Has CMS mandated Applied Behavior Analysis (ABA) services for children under 21 with Autism Spectrum Disorder (ASD)?

A1: No. Applied Behavior Analysis (ABA) is one treatment modality for ASD. CMS is not endorsing or requiring any particular treatment modality for ASD. State Medicaid agencies are responsible for determining what services are medically necessary for eligible individuals. States are expected to adhere to long-standing EPSDT obligations for individuals from birth to age 21, including providing medically necessary services available for the treatment of ASD.

Q2:When will CMS begin to assess state compliance with coverage requirements for children with Autism Spectrum Disorder (ASD)?

A2: There is no specific time frame for CMS review of state practices in this area. The CMCS Informational Bulletin released July 7, 2014 (see http://www.medicaid.gov/Federal-Policy-Guidance/Downloads/CIB-07-07-14.pdf), related to Autism Spectrum Disorder discusses the obligations under the Medicaid statute and regulations that are already in effect. However, CMS recognizes that states may not have focused on the application of these requirements in this area. As a result, a state may need time to review its current program policies to determine if changes are needed to existing state regulations and/or policy to ensure compliance. States may also want to confer with the stakeholder community for public input on the benefit design of autism services for children. CMS believes states should complete this work expeditiously and should not delay or deny provision of medically necessary services. CMS is available to provide technical assistance to states to ensure the availability of services that children may need.

Q3: Do states need to submit a Medicaid state plan amendment (SPA) to offer benefits to individuals with Autism Spectrum Disorder (ASD)?

A3: In order to have services reimbursed under the Federal Medicaid program, a service must meet the definition of a coverable service under section 1905(a) of the Social Security Act. Treatment for ASD is not specifically referenced as a section 1905(a) service. However, some treatment modalities, or components of such treatment modalities, are within the scope of the federal Medicaid program under the following service categories: section 1905(a)(6) Other Licensed Practitioner (OLP), section 1905(a)(13) Preventive Services, and section 1905(a)(11) Therapies :. States may provide services to address ASD under each of these benefit categories. States will need to determine what, if any, steps are needed to implement this policy clarification. In keeping with the role of the Medicaid state plan as a comprehensive written statement of the nature and scope of services available under the state's Medicaid program, a SPA is strongly encouraged to articulate the state's menu of services for ASD treatment.

Q4: How should a state that has a section 1915(c) home and community-based services waiver that is limited to EPSDT-age individuals but includes services related to Autism Spectrum Disorder (ASD) that are now available through the state plan respond to this policy clarification?

A4: The ASD-related services should be provided through the Medicaid state plan for the EPSDT-eligible individuals, rather than the 1915(c) waiver. CMS will work with states to ensure that such services are able to be made available under the state plan. Accordingly, CMS with also work with states to remove the service from the 1915(c) home and community-based services waiver at the next amendment or renewal, whichever comes first.

Q5: How should a state that has a section 1915(c) home and community-based services waiver that includes individuals in the EPSDT age group and also individuals beyond their 21st birthday address the Autism Spectrum Disorder (ASD)-related services that are now available through the Medicaid state plan?

A5: The ASD-related services for EPSDT eligible individuals (under age 21) must be provided under the Medicaid state plan and not under the 1915(c) waiver. When the state submits the home and community-based services waiver for renewal or amendment, the state should include a restriction under the 'limits' section for that specific service indicating that EPSDT-aged individuals are excluded as the services are fully covered in the state plan. ASD-related services for individuals over age 21 may continue to be provided under the 1915(c) waiver.

Appendix E

National Guideline Clearinghouse, Agency for Healthcare Research and Quality (AHRQ) Guideline Summary NGC:010489 1999 Jun 27 (revised 2014 Feb)

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