Analyzing the Triad Diagnosis Requirement for Autism in Arkansas

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Abstract

Autism Spectrum Disorder (ASD) is a developmental disorder that has steadily increased in incidence and prevalence over the last ten years. While the disorder can be diagnosed as early as two years of age, most children do not receive a diagnosis until they are about five years old. The state of Arkansas requires a triad autism diagnosis, mandating that a physician, psychologist, and speech pathologist individually evaluate and agree on a diagnosis of autism for a child. The purpose of this evaluation was to examine diagnostic practices in the 11 states that participate in the Autism and Developmental Disabilities Monitoring Network (ADDM) to compare efficiency of the Arkansas triad diagnosis. The ADDM findings show that Arkansas ranks last in autism detection and evaluation of at-risk children before age 3 years. These practices have not improved in the last 10 years. The participating states with the lowest ages of diagnosis and strongest practices utilized an interdisciplinary team approach and had programs located in multiple cities that were focused solely on early identification, evaluation, and diagnosis. By implementing similar interdisciplinary practices in Arkansas, the triad diagnosis requirement could be re-evaluated, and more resources for evaluation and diagnosis can be created for the state. Arkansas' identification, evaluation, and diagnostic rates could improve by discontinuing the triad autism diagnosis requirement in favor of implementing similar interdisciplinary team approaches and increasing program locations throughout the state.

Keywords: autism spectrum disorder, ASD, early diagnosis, ADDM

Introduction

Autism Spectrum Disorder (ASD), is a neurodevelopmental disorder characterized by social communication challenges and restrictive repetitive behaviors (American Psychiatric Association, 2013). These core symptoms of ASD can be detected as early as age two or three,

with an accurate diagnosis being possible as early as two years. The Autism and Developmental

Disabilities Monitoring Network (ADDM) collects data in 11 states to monitor the number of

children with a diagnosis of ASD. The network estimates that the prevalence rate of ASD is 1 in

59 children, with a 15% increase in prevalence from 2012-2016 (Baio et al., 2018). One

contributing factor to this increase could be that the clinical definition of ASD was changed in

2013 to include autism, childhood disintegrative disorder, Asperger's Syndrome, and pervasive

developmental disorder-not otherwise specified (American Psychiatric Association, 2013). These

three diagnoses along with autistic disorder make up the autism spectrum. While typically

thought of as only a neurological developmental disorder, ASD is known to affect many parts of

the body, with sleep disorders, gastrointestinal concerns, food allergies, psychiatric

comorbidities, and seizure disorders (Bilder, Botts, Smith, Pimentel, Farley, Viskochil, Coon,

2013). Developmental delays in gross and fine motor skills, along with language disorders are

common as well (Thorn, Keary, Palumbo, Ravichadran, Mullett, Hazen, McDougle, 2019).

Purpose

The purpose of this evaluation was to examine the practices of the 11 participating states

in the ADDM network and compare the diagnostic criteria and average age of diagnosis for

ASD. Analyzing the differing states' diagnostic practices, average age of diagnosis, and health

outcomes can lead to recommendations to improve the diagnostic criteria in Arkansas and

promote early identification practices.

Literature Review

Risk factors for autism include a combination of environmental and genetic influences.

These risk factors do not necessarily cause autism but can increase the risk of a child developing

autism. Autism has a genetic component that can be passed down through generations.

Environmental influence includes advanced parental age of either mom or dad, pregnancies spaced less than one year apart, and pregnancy and birth complications such as extreme prematurity, low birth weight, and multiple gestations (Durkin, Maenner, Newschaffer, Lee, Cunniff, Daniels… Scieve, 2008). These genetic and environmental influences affect early brain development and change how different parts of the brain communicate with each other (Autism Speaks, 2019).

ASD affects children of all racial, ethnic, and socioeconomic groups (Baio, Wiggins, Christensen, Maenner, Daniels, Warren, Dowling, 2018). White children are more likely to be diagnosed than Black or Hispanic children, and boys are four times more likely to be diagnosed than girls (Baio et al., 2018). Because females are diagnosed later, they may receive less interventions than males which could lead to worse outcomes. Research shows that living in certain communities does not increase the risk of developing autism, but prevalence rates may be higher amongst white children because of greater access to resources aiding in the identification of the disorder (Zeleke, Hughes, Drozda, 2019). Minority populations may be influenced by cultural beliefs, parental misinterpretation of signs and symptoms, and a distrust of the healthcare system, which all could delay seeking out help and delay diagnosis (Zeleke et al., 2019). However, the gap between white and minority children has narrowed in the most recent survey in 2018 (Baio et al., 2018). Primary care providers should remain aware of this disparity and address developmental concerns in minority children.

Autism has a significant financial impact on those affected by it. Costs associated with the care of a child with autism include health care, education, autism-related therapy, family-coordinated services, and professional caregiver assistance (Cidav, Marcus, Mandell, 2012). Behavioral therapy alone is estimated to cost between $40,000 and $60,000 annually

(Shimabukruo, Grosse, Rice, 2008). If the prevalence rate of autism remains the same, costs

associated with interventions are projected to rise to $461 billion by 2025 in the United States

(Leigh & Du, 2015). This presents a problem because Medicaid, the largest healthcare payer for

patients with autism, has experienced budget cuts in therapy services such as physical, speech,

developmental and occupational therapy (Leigh & Du, 2015). These therapies are essential in

early intervention programs and improving the developmental outcomes of people with autism.

In addition to the burden on state and federal Medicaid programs, the costs associated

with autism can also impose a significant financial burden on families and caregivers. One study

showed the average household income was 28% lower in families with a child who had autism

versus those with children who did not have a health issue (Cidav et al., 2012). Mothers of

children with autism are impacted the most, as most work 7 hours less per week and earn 56%

less than mothers with children who do not have health issues (Cidav et al., 2012). Many

mothers will stop working all together in order to care for their child (Cidav et al., 2012).

Longitudinal reports indicate that early interventions are associated with a decrease the

financial burden of ASD to the families as well as on local, state, and national budgets. Early

intervention programs have long-term, lasting effects on children diagnosed with ASD. In a

study conducted by Estes et al., children who were enrolled in early intervention programs at age

18 to 30 months of age continue to show improvement in core autism symptoms and other

adaptive behaviors even 2 years after treatment began (Estes, Munson, Rogers, Greenson,

Winter, & Dawson, 2015). Their counterparts who were only enrolled in community

interventions did not show the same improvement in core symptoms, despite receiving the same

amount of intervention hours (Estes, Munson, Rogers, Greenson, Winter, & Dawson, 2015). The

phenomenon of neural plasticity explains why early intervention programs correlates with a

significant improvement developmental outcome (Zwaigenbaum et al., 2015). Neural plasticity

refers to the ability to create new neural connections and is increased during early childhood.

Improvement made early in one developmental domain can positively affect other developmental

domains, a concept known as developmental cascades (Masten & Chicchetti, 2010). For

example, one study demonstrated the effect of improved fine motor skills on expressive language

disorder. When fine motor skills improved, children had more opportunities to play and thus

interact with more children, which then improved language skills (Masten & Chicchetti, 2010).

In contrast, a delay in fine motor skill development will limit opportunities for socialization, thus

limiting spoken language development (Masten & Chicchetti, 2010). Even though evidence

shows that early interventions can significantly improve developmental outcomes, the delay in a

medical diagnosis limits accessibility to treatment. A diagnosis of ASD is needed in order for a

child to receive these early interventions either through health insurance or through the school

system.

Although ASD can be accurately diagnosed as early as age 2, most children are not

diagnosed with ASD until after the age of four (Baio et al., 2018). While there are many

standardized screening and evaluation tools for ASD, they are not being consistently used in

primary care clinics. Pediatricians may rely on their own knowledge and experience to determine

if a child needs an evaluation, but the ADDM recommends that if a parent has any concern about

development, it is reason enough to conduct a comprehensive developmental evaluation (Baio et

al., 2018). The American Academy of Pediatrics recommends that children are screened at the 18

and 24-month well-child visits for ASD and other developmental disorders, regardless of

parental concern (Hyman, Levy, Myers, 2020). This is in addition to the general developmental

screenings that are recommended at the 9, 18 and 30 months. In 2016, only 30.4% of parents of

children aged 9-35 months reported receiving a parent-completed developmental screening tool, and only 19.2% received developmental surveillance and screening during the well-child visit (Hirai, Kogan, Kandasamy, Reuland, Bethell, 2018). In addition to this, 48.6% of pediatricians are using informal screening tools, and half did not consistently use established screening tools on patients younger than 36 months (Radecki, Sand-Loud, O'Connor, Sharp, Olson, 2011). Many pediatricians also will wait until the next well-child visit to see if the child has "grown out" of their symptoms before conducting an evaluation. These self-reported statistics provide further insight into why the ADDM network found that most children are not diagnosed with ASD until after the age of 4 years. One *Healthy People 2020* goal aims to increase the proportion of children with autism who are enrolled in special services by age 48 months ("Maternal, Infant, and Child Health", 2020). In order to achieve this goal, practices will need to be developed to lower the average age of diagnosis in the United States.

Autism Spectrum Disorder in Arkansas

In the state of Arkansas, 1 in 77 children are diagnosed with ASD, with most diagnoses occurring at 4 years and 11 months of age (Baio et al., 2018). Nationally, 42.7% of children with ASD are diagnosed before age four, while in Arkansas, only 31% receive a diagnosis before age four years (Baio et al., 2018). Having this delay in a diagnosis prolongs the initiation of services such as Applied Behavioral Analysis, speech, occupational, and physical therapy, and special education services. 35.7% of children with ASD have an intellectual disability, so early intervention is crucial in providing the best social and cognitive outcomes.

In Arkansas, a child receives an autism diagnosis after being evaluated by a physician, who then refers to a child psychologist and a speech pathologist. All three professionals must individually evaluate the child and make a recommendation for diagnosis. The triad diagnosis

process can delay the time it takes for a child to receive an official diagnosis therefore delaying early intervention programs. In addition to this requirement, most diagnostic evaluations are performed at the James L. Dennis Development Center in Little Rock, Arkansas and the Schmieding Developmental Center in Lowell, Arkansas, both of which have long wait lists for children waiting to receive an ASD diagnosis (CoBALT, 2020). As of February 2020, the Schmieding Center has a 14-month wait list for referred patients (Schmieding Developmental Center, 2020). This 14-month period is valuable time lost when children could be receiving applied behavioral analysis, services from speech pathology and occupational therapy.

Methodology

The purpose of this study was to analyze the CDC data from the ADDM network, inspecting the different states' diagnostic criteria and average age of diagnosis for ASD and comparing their results to Arkansas. The table below was compiled using information from the CDC ADDM network website, as well as information received from each state's CDC Act Early ambassador. Act Early ambassadors are experts in developmental disabilities who work to improve early identification in their state and help connect families to the appropriate resources. The table outlines the providers who are able to diagnose ASD, the average age of diagnosis, the percentage of children identified with ASD who had a developmental concern before age three, and how many actually had a developmental evaluation before age three. Comparing the percentage of those who had a concern to those who had an evaluation before age three can provide insight into which states are able to minimize the length of time from first concern to diagnosis. These states warrant additional interest into their methods for accomplishing higher rates of early diagnosis and intervention.

Results

Table 1

State	Providers required to form a diagnosis	Percentage who had a concern before age 3	Percentage who had evaluation before age 3	Age of Diagnosis
Arizona	Any one of the following: psychologist, child, psychiatrist, neurologist, or developmental pediatrician	90%	38%	4 years 8 months
Arkansas	Triad Diagnosis-physician, child psychologist, and speech pathologist	92%	31%	4 years 11 months
Colorado	Any one of the following: developmental pediatrician, child neurologist, child psychologist	89%	48%	4 years 3 months
Georgia	Psychologist	86%	38%	4 years 5 months
Maryland	Any one of the following: child neurologist, psychiatrist, psychologist, neuropsychologists, or developmental pediatrician.	92%	56%	4 years 4 months
Minnesota	Psychologist or Physician	79%	39%	4 years 8 months
Missouri	Physician or clinical psychologist	72%	32%	4 years 8 months

New Jersey	Any one of the following: physician, clinical psychologist or nurse practitioner	80%	44%	4 years
North Carolina	Any one of the following: child psychologist, child psychiatrist, developmental pediatrician, and pediatric neurologist	93%	66%	3 years, 4 months
Tennessee	Physician or psychologist	61%	36%	4 years, 8 months
Wisconsin	Any one of the following: clinical psychologist, child psychiatrist, or pediatrician	90%	50%	4 years, 3 months

Source: https://www.cdc.gov/ncbddd/autism/addm-community-report/index.html

The ADDM follows two age groups: 4-year-olds and 8-year-olds. The surveillance data gathered for children aged four years provides insight into which states are meeting the *Healthy People 2020* goal of 47% of children with a developmental concern receiving a comprehensive evaluation by 36 months. It also helps identify disparities in early evaluation and promotes community efforts for early interventions. The data gathered from the 8-year-old group shows the long-term developmental outcomes from early identification and diagnosis, or lack thereof.

In Arizona, a child psychologist or psychiatrist, neurologist, or developmental pediatrician are able to make a diagnosis of ASD. Their average age of diagnosis is 4 years and 8 months, with 90% of children having a developmental concern before age three. Of these children, only 38% had a comprehensive evaluation before age three. This is a significant gap

between the prevalence of a developmental concern being brought up to evaluation time and final diagnosis. One barrier is the lack of local resources needed to evaluate and diagnose ASD. Many of the professionals who diagnose ASD are based out of the bigger cities in Arizona like Phoenix, where the state university-related hospitals and children's hospital are located. Families who don't live in the bigger cities of Arizona may find it hard to find resources in their own community, and if there are some, the wait lists for an appointment can delay the age of first evaluation (Baio et al., 2018).

With Arkansas being a heavily rural state, it faces similar barriers to accessing care as Arizona. The two major centers who conduct developmental evaluations and diagnose ASD are located in Little Rock and Northwest Arkansas, and each of them have waiting lists of six months and 14 months, respectively. These wait times can explain the gap between time of concern and time of evaluation. Ninety-two percent of children had a developmental concern before age three, while only 31% had a received a comprehensive evaluation before age three. Arkansas had the highest age of diagnosis at 4 years and 11 months. One strength of the Arkansas ADDM is that it monitors all 75 counties in the state, whereas most states only monitor the counties surrounding a metropolitan area. The Arkansas ADDM also monitors four, eight, and 16-year-olds across the state. By having this wide range of ages to observe, the data gathered by the Arkansas ADDM can be applied broadly to make changes to promote earlier interventions and diagnoses in the state of Arkansas (Baio et al., 2018).

In Colorado, a developmental pediatrician, child psychiatrist, or a child psychologist is licensed to diagnose autism. Forty-eight percent of children have received an evaluation by age three years, which meets the *Healthy People 2020* target of 47% of children receiving an evaluation. Eighty-nine percent of children had a concern before age three with the average age

of diagnosis being 4 years and 3 months. The monitoring area for Colorado is the Denver

Metropolitan area, where major hospitals such as Children's Hospital of Colorado and the

University of Colorado School of Medicine have established community outreach programs.

Having these community resources allows for developmental concerns to be addressed promptly,

but long wait times at these community clinics creates a barrier in lowering the age of diagnosis

("Welcome to", n.d.).

        In Georgia, clinical psychologists are licensed to provide an autism diagnosis. While 86%

of children have a developmental concern before age three years, only 38% receive an

evaluation. The average age of diagnosis in Georgia is 4 years and 5 months. Public health

initiatives, such as The Georgia Autism Initiative, have been created to help lower the age of

diagnosis. This was launched as a public health initiative to increase community resources to

identify, evaluate, and diagnose autism in children across Georgia. It ensures that at least one

diagnostic provider is available in each of Georgia's 18 public health districts, and the Georgia

Autism Assessment Collaborative confirms that community psychologists are trained to

administer the ADOS ("Autism Initiative Services", n.d.). Through the Georgia Autism

Initiative, over 3,500 children were screened and evaluated for ASD in 2019 ("Autism Initiative

Services", n.d.). After a child is diagnosed, a Board-Certified Behavioral Analyst will develop a

behavioral plan for the child. By ensuring these resources are available state-wide, Georgia has

improved the access to evaluation and diagnostic resources.

        Maryland's average age of diagnosis sits at 4 years and 4 months. Child neurologists,

psychiatrists, psychologists, neuropsychologists, or developmental pediatricians are all able to

provide a diagnosis of ASD, with most of the diagnoses made by neuropsychologists and

psychiatrists trained in developmental disorders. Ninety-two percent of children identified with

autism had a concern before age three years, but only 56% received an evaluation. This percentage meets the *Healthy People 2020* target of 47% of children receiving an evaluation before age three years.

In Minnesota, both psychologists and physicians are able to diagnose ASD. The average age of diagnosis is 4 years and 8 months. While 79% of children identified with autism had a concern before age three years, only 39% had received an evaluation at that time. Minnesota has a culturally diverse population, with their Somali and Hmong populations being some of the most concentrated in the country. These populations resettled in the Twin Cities as refugees, and their communities have since thrived. Minnesota's ADDM is working to help increase screenings in these communities to help increase awareness of ASD and promote early identification. By partnering with these communities, the Minnesota ADDM has focused on reducing health disparities of autism in these communities and ensuring access to diagnostic evaluations and treatment ("MN-ADDM", n.d.).

In Missouri, a physician or clinical psychologist are able to provide a diagnosis of autism. The average age of diagnosis is 4 years and 8 months. While 79% of children had a developmental concern by age three, only 39% had an evaluation by age three. The Missouri Autism Guidelines Initiative has been working to create guidelines for evidence-based interventions for ASD that are specific to the barriers that Missouri is seeing in early evaluation and diagnosis. Physicians, clinical psychologists, board-certified behavior analysts, educators, and speech-language pathologists all collaborated in an interdisciplinary approach to create 36 evidence-based guidelines for practice. Several core values guide the interventions that are presented, including family-centered care, early intervention, informed professional judgement, interdisciplinary team, and community collaboration (Farmer, Kanne, Kilo, Mantovani, 2010). A

tiered approach is suggested to increase the availability of early diagnostic evaluations that are

accurate. In this tiered approach, the diagnosing clinician can use their clinical judgment to

determine whether or not they need to consult other professionals to make or rule out an ASD

diagnosis, eliminating the need for multiple providers to agree on a diagnosis as is the case in

Arkansas. This approach utilizes the interdisciplinary team to ensure an accurate, early diagnosis

but places heavy responsibility on the lead practitioner to coordinate care and act as a liaison

between the patient and interdisciplinary providers. Regardless, the use of research allows

guidelines to be easily translated into evidence-based practice to improve outcomes of children

diagnosed with ASD in Missouri.

New Jersey is ranked second in the ADDM in age of diagnosis, with the average age

being four years. While 80% of children had a developmental concern by age three, only 44%

had an evaluation by age three. A physician, clinical psychologist, or nurse practitioner is

licensed to diagnose autism, and a diagnosis from just one practitioner is enough for the child to

receive a diagnosis. In New Jersey, most of the diagnosing is done by developmental

pediatricians and pediatric neurologists. One limitation is that in order to be eligible for special

education classification, the child must have a diagnosis of autism from an MD, as well as a

child study team evaluation, which includes an evaluation by a speech pathologist. A diagnosis

from a psychologist or nurse practitioner will not qualify them for special education. It will,

however, allow the child to receive other community services. By licensing nurse practitioners

and psychologist to also diagnose autism, this ensures there are adequate numbers of licensing

professionals in the state, which puts the wait lists for appointments at three months. While this

wait period is not ideal, it is lower than the 14 month waiting times for Arkansas.

North Carolina is of special interest since their average age of diagnosis is the lowest of the states included in the ADDM, at 3 years and 4 months. One in 39 8-year-old children, or 2.5%, were identified with ASD, which is higher than ADDM average of 1.85% of children. Despite having a higher prevalence of children with ASD, 62% of children had a first evaluation by three years of age, meeting the *Healthy People 2020* target of 47% of children having an evaluation by three years. Of these children who received this evaluation, 93% had a developmental concern before age three years. North Carolina also has a strong interdisciplinary approach to the assessment and diagnosis of ASD. At *The Carolina Institute for Developmental Disabilities*, a community-based interdisciplinary model of care, is used to identify and treat children with autism. A clinical partnership between a community pediatric practice and the Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH), a psychosocial outreach group, was formed to help bridge the communication gap between primary care providers and professionals who diagnose and treat ASD. Many families report frustration regarding poor communication between disciplines and lack of guidance as they navigate the behavioral health system. ("Community-based Interdisciplinary", n.d.). The collaboration between the practice and TEACCH aims to streamline communication between providers, coordinate care, and develop treatment plans that address medical and psychosocial needs ("Community-based Interdisciplinary", n.d.). This allows them to identify children who have a developmental concern at an early age and start them in the right early intervention programs to maximize long-term outcomes.

In Tennessee, a physician or a psychologist can diagnose autism. Speech pathologists can also diagnose if they are trained in the Autism Diagnostic Observation Schedule (ADOS), but some insurance companies will only provide coverage for services if it is a physician or

psychologist who diagnosed the patient. While Tennessee does not require an ADOS assessment for a child to receive services, some insurance companies are requiring these for coverage of certain services. This requirement could be an obstacle to early intervention even if a diagnosis is made early. The average age of diagnosis is 4 years and 8 months in Tennessee. Sixty-one percent of children identified with ASD had a developmental concern before age three, but only 36% had received an evaluation before age three.

In Wisconsin, a clinical psychologist, child psychiatrist, or pediatrician can diagnose ASD. While 90% of children had a developmental concern before age three, only 50% received an evaluation before age three years. Wisconsin does meet the *Healthy People 2020* target of 47% of children receiving an evaluation before age three. The Wisconsin Early Autism Project works to provide diagnostic evaluations and early treatment with an emphasis on applied behavioral analysis. If a parent has a concern about their child's development, the program works to schedule a diagnostic evaluation within just a few weeks. They offer treatment programs at their center or at the patient's home, depending on the needs of the patient. They also offer a preschool, social skills groups, and outpatient counseling for the both the patient and their family. With clinics in four cities in Wisconsin, this holistic approach to treating ASD has proven to be effective, and has even extended to other states like Minnesota, Illinois, and South Carolina. Their approach to early evaluation has helped in lowering the age of first evaluation and diagnosis.

Recommendations for Practice

After analyzing the data from the ADDM and comparing outcomes, the states with the lowest age of diagnosis used an interdisciplinary approach for the evaluation and diagnosis of autism. While Arkansas uses a multidisciplinary team to make a diagnosis, requiring three

disciplines to agree on a diagnosis, regulations do not promote collaboration which limits the number of children who receive a diagnosis before age three despite showing core symptoms. Arkansas is the only state in the ADDM that requires a triad diagnosis and also has the highest age of diagnosis at 4 years and 11 months. This requirement should be re-evaluated for effectiveness and to determine if it is best practice according to research.

One strength of the Arkansas ADDM is that it monitors children in all 75 counties in the state. This means that the community assessment findings provide an accurate picture of ASD in the state, and guide state practices to help lower the age of diagnosis. North Carolina and Wisconsin were among the states with the highest percentages of children who had received an evaluation. These two states each had their own early intervention programs, TEACCH and WEAP, focused on providing early evaluations, diagnoses, and interventions tailored to the individual. Missouri, despite having a low percentage of children who had received a developmental evaluation by age three, recognized this poor statistic and assembled an interdisciplinary team to research and come up with ways to implement evidence-based practice. By developing and implementing interdisciplinary, evidence-based programs like these in Arkansas, the state can create more resources to ensure early identification and evaluation of children who have a developmental concern.

Creating these resources poses the question of "where" to establish these programs, and since most of the state's autism resources are concentrated in Little Rock or Northwest Arkansas, these are the most likely locations for an early intervention clinic. However, putting a clinic in these urban areas does not address the disparity that rural communities face in accessing health care for developmental evaluations. The priority need in Arkansas for the evaluation and diagnosis of ASD is more clinics or programs to conduct these evaluations. By setting up these

programs to have an emphasis on interdisciplinary, family centered care like the ones in North
Carolina and Wisconsin, Arkansas can both increase the number of diagnostic evaluations that
are available. Once a program like this is successfully implemented in an urban area, the focus
can be shifted into expanding these programs into the rural areas of Arkansas to help reduce
disparities and increase the number of early evaluations that are conducted.

Limitations

One limitation to using the ADDM data is that not all 50 states are included in the
network, and states will enter and exit the ADDM based on if they receive funding from the
CDC. For example, Utah was included in the 2016 report, was absent in the 2018 and
preliminary 2020 reports, and will rejoin in 2022 after receiving additional funding from the
CDC (Winchester, 2019). This causes gaps in data that could be used to help guide nation-wide
practices. Another limitation is that each state decides which area will be a part of the monitoring
area. Most states only monitor children living in the counties surrounding a metropolitan area or
in cities where a major academic institution is located and excludes rural areas, or even other
major cities in the state. Therefore, the data from the ADDM cannot be applied generally and
used to guide practices for the whole state. In order to gain a holistic understanding of the state's
practice of early evaluation and diagnosis, data needs to be gathered from every county.

Conclusion

Autism Spectrum Disorder has steadily increased in prevalence over the past 10 years,
but the age of diagnosis has stayed relatively the same. The age of diagnosis be lowered by
identifying developmental concerns early and promptly referring patients for diagnostic
evaluations, instead of using the common practice of "wait and see," the age of diagnosis can be
lowered. While early intervention programs are available for children waiting for a diagnostic

evaluation, intensive behavioral therapies needed to improve developmental outcomes are only

available after a qualified provider has ascribed a diagnosis of ASD. Early intervention is

essential to creating developmental, linguistic, and behavioral improvements that will last into

adulthood. Receiving a diagnosis later in childhood is associated with a greater financial strain

on the child's family as well as local, state, and national budgets due to the increased number of

resources the child will need, and the increased length of time they will need to be enrolled in

interventional services.

      To improve outcomes and determine the best method of diagnosing ASD, a team based in

Arkansas should develop evidence-based guidelines for practice and address challenges that are

specific to the state, such as providing care in rural communities. This team should also evaluate

the effectiveness or barrier to diagnosis that the triad diagnosis requirement presents to patients

and look to other states in the ADDM network to see how their evidence-based guidelines are

improving practice. By planning initiatives to lower the age of diagnosis in Arkansas, more

resources can be made available for children across the state, and long-term developmental

outcomes of children with ASD will be improved.

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