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Autism is a range of complex neurobiological developmental disabilities which are defined by social impairments, communication difficulties, and repetitive behaviors. Autism occurs in all ethnic and socioeconomic groups (National Institute of Neurological Disorders and Stroke, 2009). A recent study of children ages 3-17 estimated that 1 in 100 children in the United States have some form of autism (Kogen, et al., 2009). In acknowledging the significance of this dramatic increase from the previously estimated 1 in 150, the Centers for Disease Control and Prevention (CDC) referred to autism as an “urgent public health concern” and expressed the need for “a concerted and substantial national response” (2009b).

### Autism Spectrum Disorders

Autism is one of three disorders classified in the autism spectrum disorders (ASD). The three disorders have similar symptoms and signs such as problems with social interaction, but differ in severity and occurrence (CDC, 2009a). Pervasive developmental disorders (PDD) is another term commonly used to categorize autism. PDD is an umbrella term covering disorders that cause “severe and pervasive impairment in several areas of development.” All three disorders in ASD are considered to be part of PDD. Some confusion and debate has occurred among professionals in the autism field on how to correctly refer to and categorize autism, but generally autism literature will refer to autism as being an ASD and/or a PDD (Autism Society of America, 2008c).

- **Autistic Disorder** – Individuals with this disorder experience difficulties in social interaction, communication, and display unusual behaviors and interest. They suffer from delays in cognitive abilities and language

disorders; it is commonly referred to as “classic” autism (CDC, 2009a).

- **Asperger Syndrome** – Individuals who suffer from this disorder have difficulties in social interaction and have a hard time communicating their feelings. They are sensitive to various stimuli, from foods to sounds. One of the differences between this disorder and autistic disorder is that persons affected with Asperger syndrome do not have trouble with language, and generally have an IQ in the normal to superior range (Autism Speaks, 2009a).
- **Pervasive Developmental Disorder-Not Otherwise Specified** – This group is for individuals who have autistic symptoms and signs, but who do not meet the specific diagnostic criteria of the other two disorders. It includes difficulty socializing, repetitive behavior, and heightened sensitivity to certain stimuli (Autism Speaks, 2009c).

### Prevalence of Autism

Autism is growing at an annual rate of 10-17 percent, making it the fastest-growing developmental disability (Autism Society of America, n.d.b). The steady increase has become a cause for concern as many more children are suffering from the disability than had been previously assumed.

While current figures show that autism occurs in all racial, ethnic, and social groups, there are three groups that have a higher-than-normal risk for autism:

- **Boys** – males are four times more likely to have autism than females.
- **Siblings of those with a form of autism** – Families that have one child with autism show

a rate of recurrence of autism in another child of about 2-8 percent (significantly higher than the general population).

- **Individuals with certain other developmental disorders** – In about 5 percent of autism cases, certain disorders such as Fragile X Syndrome (mental retardation caused by a mutation on the X chromosome that prohibits the gene from producing a necessary protein), tuberous sclerosis (an inherited disorder of the skin and nervous system that is characterized typically by epilepsy and mental retardation) and other forms of mental retardation are also present.

(CDC, 2009a)

Autism Prevalence in Texas

According to Fighting Autism, a research, education and treatment database, Texas is ranked 29<sup>th</sup> in prevalent autism cases, within the 2008-09 school year, 1 of 163 students age 8 suffered from some form of autism (Fighting Autism, 2009). The actual prevalence of autism is not entirely known, but an analysis of educational data provides perhaps the closest indications. The following table, with data from the Texas Education Agency, illustrates the growth of autism cases in Texas in 3-21 year old students during the 2007-2009 school years.

**Number of Children with Autism in Texas School System**

	2007	2008	2009
<b>Ages 3-5</b>	2,646	2,836	3,374
<b>Ages 6-21</b>	16,871	19,521	22,610
<b>TOTAL</b>	19,356	22,373	26,003

(Texas Education Agency, 2009)

Autism Prevalence in San Antonio area

According to data from the Texas Education Agency, the number of individuals ages 3-21 with an autism diagnosis and who are being educated in the Region 20 school system has increased during the past three school years. This is consistent with national studies showing that autism in children is increasing. The Region 20 school system includes school districts in the following counties: Atascosa, Bandera, Bexar, Dimmit, Frio, half of Kendall, the majority of Kerr, Kinney, La Salle, Maverick, Medina, the majority of Real, the majority of Uvalde, Wilson, and Zavala.

In Region 20, the numbers of Autistic children are increasing even as the numbers of children with

disabilities (of which autism is one) in general are declining:

**Number of Children with Autism in Region 20 School System**

	2007	2008	2009
<b>Disability</b>	44,224	43,132	41,919
<b>Autism</b>	1,708	2,022	2,328

(L. Davidson, personal communication, December 17, 2009)

**Diagnosing Autism**

Researchers have determined that early diagnosis and intervention has a noticeable impact on an autistic child’s development. It is recommended by the American Academy of Pediatrics that children be tested for autism by age 18 months and again at 24 months. 3 to 25 percent of children who receive early intervention improve to the point that they no longer exhibit autistic symptoms (American Academy of Pediatrics [AAP], 2009).

The signs and symptoms of autism appear in varying degrees and are classified under three main categories: social skills, communication skills and repetitive behaviors.

Social Deficits

- Impaired use of nonverbal behaviors (eye contact, facial expression, gestures, etc.) to regulate social interaction
- Little seeking to share interests with people
- Lack of social-emotional reciprocity

Communication Deficits

- Delay in or absence of spoken language
- Distinctive or repetitive use of language
- Limited ability for make-believe play

Repetitive and Stereotyped Behavior

- Preoccupations with one or more stereotyped interests that is abnormal in intensity or focus
- Stereotyped body movements (hand or finger flapping or twisting, etc)
- Persistent preoccupation with parts or sensory qualities of objects

(Johnson, Myers, and the Council of Children with Disabilities, 2007)

Currently, no medical tests are available to detect autism. Observation of the child and detection of autistic signs and symptoms is the only method for diagnosis. Parents observing any combination of the described signs and symptoms should have their child seen by a physician (Autism Society of America, 2008a). While some parents may be hesitant in taking their children to see a physician

and initially attribute the symptoms as temporary, the following “red flags” should signal for immediate evaluation by a qualified physician:

### **“Red Flags”**

- ✓ Does not babble or coo by 12 months
- ✓ Does not gesture (point, wave) by 12 months
- ✓ Does not say single words by 16 months
- ✓ Does not say two-word phrases on its own (rather than repeating what someone says to them) by 24 months
- ✓ Has any loss of language or social skills at any age
- ✓ Does not offer joyful expressions, such as big smiles by age six months
- ✓ Does not reciprocate facial expressions by the age of nine months

(Autism Speaks, 2009b)

### **Possible Causes**

While there are various projects investigating possible causes of autism, there are no definite known reasons for its occurrence at this time. A variety of factors linked to autism continue to be investigated. These factors include genetics, the environment and neurobiology (AAP, 2009). Since September 1, 2009, the National Institute of Mental Health has funded more than \$100 million towards autism research. Funded studies include: “determining the complete DNA sequence of individuals with autism and their parents, to look for hidden genetic causes; developing and testing diagnostic screening tools for different populations; assessing risk from prenatal or early life exposures; initiating clinical trials to test early interventions; and adapting existing, effective pediatric treatments for older children, teens, and adults with autism” (The White House, 2009).

### **Genetics**

It is estimated that 10% to 20% of all ASD cases may be genetic in origin (AAP, 2009). Evidence supporting the link between genetics and autism can be illustrated by examining the frequency of twins with autism. A recent study found that when autism was identified in one twin the other twin had a high incidence of having autism. The rate of autism in a second twin was 88% percent for identical twins and 31% for fraternal twins (Rosenberg, Law, Yenokyan, et al., 2009).

Other evidence supporting genetic causes of autism is genetic vulnerability. Autism tends to occur more frequently when certain other conditions are

present including; Fragile X syndrome, tuberous sclerosis, congenital rubella syndrome, and untreated phenylketonuria (Autism Society of America, 2008b).

### **The Environment**

A study from Vanderbilt University suggested that both environmental influences and genetics play a part in autism due to both factors being the basis for brain development (Kirby, 2009). It has been found that many children with autism have a metabolic impairment that reduces their ability to rid the body of heavy metals and toxins (Autism Society of America, n.d.a). A study conducted at the UT Health Science Center in San Antonio showed a statistically significant link between industrial release of mercury and autism. The researchers discovered that the prevalence of autism was reduced by 1 to 2 percent every 10 mile distance from the pollution source (UT Health Science Center San Antonio, 2008).

Also included in this category is prenatal exposure to particular medications, alcohol, and infections such as rubella and cytomegalovirus. In prior years, it was believed that the increase of autism cases was linked to children’s vaccines. This belief has been entirely disproved. The American Academy of Pediatrics (2009) states, “Expert review of the scientific literature finds no causal link between vaccines and autism.”

### **Neurobiology**

The emergence of brain imaging technologies such as MRI and PET scans has allowed researchers to identify numerous areas of the brain involved in autism. Also being studied are the roles of neurotransmitters such as serotonin, dopamine, and epinephrine. It has been shown that abnormal brain development in a child’s first months may be a contributing cause of autism (National Institute of Mental Health [NIMH], 2009a). Abnormal connectivity between brain cells responsible for imitation, facial expression and sensory process, are being identified (AAP, 2009).

### **Treatment**

No known cure for autism exists nor does one single treatment package help all individuals with autism. Doctors specializing in diagnosing autism spectrum disorder will evaluate the child’s condition and often provide a variety of different treatments that will help improve his/her lifestyle. The available treatments include behavioral

therapy and therapeutic options, educational and/or school-based options, and medication used for relief of some symptoms (NIMH, 2009b).

#### Behavioral Therapy and Therapeutic Options

Behavior management therapy works to reinforce “good” behaviors and reduce unwanted behaviors.

- *Speech-language therapists* help improve the individual’s ability to communicate and interact with other effectively.
- *Occupational therapists* help individuals adjust tasks to their needs and abilities.
- *Physical therapists* design activities to improve motor control.

(National Institute of Child Health and Human Development [NICHD], 2008)

#### Educational and/or School Based Options

Educational options are available for children between the ages of 3 and 21 through the Individuals with Disabilities Education Act (IDEA). These options include:

- Participation in specialized classrooms
- One-on-one instruction
- Intensive behavioral interventions

(NIHM, 2009b).

In Texas, most special education teachers do not receive training during their certification program to be able to manage children with autism. The Texas Council on Autism and Pervasive Developmental Disorders (TCAPPD) is developing a Texas Autism Research and Resource Center (TARRC) which would include: education and training of professionals interacting with people with autism; autism research; outreach and community education (TCAPPD, 2009).

#### Medication

Medication is often only prescribed to alleviate a few symptoms associated with autism. A health care provider will start the individual on a trial basis of medication, and then observe them to see if it improves their condition. Medication helpful to one person might not mitigate symptoms in another. Among drugs used are selective serotonin reuptake inhibitors (SSRIs), tricyclics, psychoactive/anti-psychotics, stimulants, and anti-anxiety drugs (NICHD, 2008).

#### **Autism Resources in San Antonio**

Any Baby Can San Antonio’s “Reaching Families Facing Autism” program includes parent education services for families of children

ages 2-11 years who have been diagnosed with ASD, several autism support and education groups including one in Spanish, group counseling with a licensed psychologist, an autism library with books, videos, and magazines and an autism resource guide that provides additional information about autism services in the San Antonio area (Any Baby Can San Antonio, 2009).

The Early Childhood Intervention (ECI) program is a statewide program administered by the Texas Department of Assistive and Rehabilitative Services (DARS) that focuses exclusively on services for infants from birth to age three that suffer from disabilities or developmental delays, including autism. The benefits offered by ECI include promoting development and learning, providing support to families, coordinating services, and decreasing the need for costly special programs (DARS, n.d[b]). There are three organizations in San Antonio that offer ECI services: the Brighton School, the Easter Seal Rehabilitation Center, and PACES (DARS, n.d[a]).

Autism Treatment Center, headquartered in Dallas, has a day program and several community-based group homes in San Antonio. Services provided include educational opportunities for persons ages 3-21 (Autism Treatment Centers, 2009a), and a rehabilitation center that offers occupational therapy, speech therapy, diagnostics, assessments, developmental autism screenings and telemedicine (Autism Treatment Centers, 2009b).

Founded in 2008, the Autism Service Center of San Antonio d.b.a. Autism Community Network was created with the long-term vision that it will “become the “hub” for collaboration of autism services” (Autism Community Network, 2009) in the San Antonio area. Its mission to maximize the potential of children with autism, provide services to underserved children and families, and promote awareness in the community is encompasses in three primary goals to provide:

- Education and training to autism service providers
  - Interdisciplinary diagnosis and treatment to young children with ASD
  - Comprehensive information and referrals for families and professionals
- (Autism Community Network, 2009)

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