

# Autism Spectrum Disorders (ASD) Screening, Assessment, and Treatment in the under Five Population

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# Outline of Discussion

- \* Purpose
- \* What are Autism Spectrum Disorders
  - History
  - Prevalence
- \*Typical Development
- \*Screening Recommendations
- \*Act Early
- \*Assessment Recommendations
- \*Treatment Recommendations

★ [www.youtube.com/watch?  
v=cXXm696UbKY](http://www.youtube.com/watch?v=cXXm696UbKY)

# Why Talk about this?

## Why does it matter?

- ✦ Rates of ASD are increasing
- ✦ Early intervention has been shown to improve outcomes for children with ASD\*
- ✦ In order for children with ASD to receive intervention, first they need to be identified
- ✦ To care for a person with autism without early intervention over his/her lifetime the estimated cost is \$3.2 million.\*\*

\*Dawson, G. & Osterling, J.(1997). Early intervethnion in autism. In M.J. Guralnick (Ed.) *The effectiveness of early intervention* (pp. 307-326). Baltimore: Paul H. Brookes Publishing Co.

\*\*Ganx, M., "The Costs of Autism," *Understanding Autism: From Basic Neuroscience to Treatment*, S. Moldin, J.L.R. Rubenstein, eds., CRC Press, 2006, pg. 475-502. (As reported in the California Legislative Blue Ribbon Commission on Autism Report, Sept. 2007: *An Opportunity to Achieve Real Change for California with Autism Spectrum Disorders.*)



# Autism Spectrum Disorders ASD

- ✦ Early emerging neurodevelopmental disorders that have an impact on most domains of cognitive and adaptive functioning.
- ✦ Developmental disorder involving life-long impairments in social interaction, communication, and narrow interests/repetitive behaviors

# Autism

- ✦ Autism has complex phenotype
  - ✦ Extremely heterogeneous
  - ✦ Male to Female ratio 4:1
  - ✦ Autism phenotype appears to extend beyond classic autism to “lesser variant” phenotypes
    - ✦ (Rutter, Bailey, Bolton, & Le Couteur, 1993)

# Signs and Symptoms

- ✦ National Research Council in its 2001 report Educating Children with Autism remarked “the manifestation of autism vary considerably across children and within an individual child over time. There is no single behavior that is always typical of autism and no behavior that would automatically exclude an individual child from a diagnosis of autism, even though there are strong and consistent commonalities, especially relative to social deficit.”

✦ National Research Council, Committee on Interventions for Children with Autism. *Educating Children with Autism*. Washington, DC: National Academies Press; 2001



# DSM-IV Core Characteristics: Criteria for Autistic Disorder

- ★ Meeting Criteria For Autism:
  - ★ Individual must show at least 6 of the 12 symptoms
    - ★ At least 2 symptoms from the social domain
    - ★ At least 1 symptom from the communication domain
    - ★ At least 1 symptom from the restricted behaviors/interest domain
  - ★ Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play
  - ★ The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder

★ American Psychiatric Association. (2000). Autism. *Diagnostic and statistical manual of mental disorders* (4th ed. text revision, pp. 59 – 61). Washington, D.C.



# Social Interaction

- ★ (1) qualitative impairment in social interaction, as manifested by at least two of the following:
  - ★ (a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
  - (b) failure to develop peer relationships appropriate to developmental level
  - (c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)
  - (d) lack of social or emotional reciprocity

# Communication

- ★ (2) qualitative impairments in communication as manifested by at least one of the following:
- ★ (a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
- (b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
- (c) stereotyped and repetitive use of language or idiosyncratic language
- (d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

## Narrow Interests/Repetitive Behaviors

- ★ (3) restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least two of the following:
  - ★ (a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
  - (b) apparently inflexible adherence to specific, nonfunctional routines or rituals
  - (c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
  - (d) persistent preoccupation with parts of objects

★ American Psychiatric Association. (2000). Autism. *Diagnostic and statistical manual of mental disorders* (4th ed. text revision, pp. 59 – 61). Washington, D.C.





**Leo Kanner, M.D., 1894-1981**



# Kanner's description

- ✦ The June 1943 issue of the now extinct journal **The Nervous Child** carried a paper entitled Autistic Disturbances of affective contact
- ✦ The patients were between 2 and 8 years old when first seen at the Children's Psychiatric Clinic of the Johns Hopkins Hospital

# Kanner's description

- ✦ Description of 11 children with previously undescribed syndrome
- ✦ Traits these children presented with included:
  - ✦ Inability to relate to others
  - ✦ Failure to use language to convey meaning
  - ✦ Need for maintaining consistency

# ASD

- ✦ Blurs boundaries among most common Pervasive Developmental Disabilities
  - ✦ Autism, Asperger's Syndrome, Pervasive Developmental Disability Not Otherwise Specified
- ✦ Variability in presentation:
  - ✦ Non-verbal to verbal
  - ✦ Profoundly intellectually disabled to gift intellectually
- ✦ Wing and Gould hypothesized continuum of affectiveness
- ✦ Wing, L., & Gould, J. (1979). Severe impairments of social interaction and associated abnormalities in children: Epidemiology and classification. *Journal of Autism and Developmental Disorders*, 9, 11-29

★ [www.youtube.com/watch?  
v=mc1H0aVqn20&feature=related](http://www.youtube.com/watch?v=mc1H0aVqn20&feature=related)



# Prevalence

- ✦ Majority of studies conducted in the 1960's to 1980's reported prevalence rates of ASD ranging from 2 to 5 in 10,000

- ✦ Prevalence of Parent-Reported Diagnosis of Autism Spectrum Disorder Among Children in the US, 2007, *Pediatrics* Nov. 2009 (5), 1395-1403

# Prevalence

- ✦ According to parental responses to two population-based federal surveys, autism spectrum disorders approximately affect between 75 and 76 children in every 10,000 children in the United States, according to a May 5, 2006, report by the Centers for Disease Control and Prevention (CDC).

- ✦ *MMWR Morb Mortal Wkly Rep.* 2006;55 (17): 481-486

- ✦ *MMWR Surveill Summ* 2007;56 (1): 12-28

# Prevalence

- ✦ In 2007, 1.1% of US children aged 3 to 17 (1 of 91 children in this age group) were reported to have ASD

- ✦ Prevalence of Parent-Reported Diagnosis of Autism Spectrum Disorder Among Children in the US, 2007, *Pediatrics* Nov. 2009 (5), 1395-1403

# Why the Increase?

- ✦ Increased population awareness
- ✦ Improved screening by providers
- ✦ Improved identification by providers
- ✦ Broadening of the diagnosis



# Typical Development



# Examples of Typical Development During First 2 Years of Life

## ★ Newborns

- ★ Prefer looking at faces over nonface patterns\*
- ★ Prefer listening to speech than nonspeech sounds\*\*
- ★ Imitate simple gestures\*\*\*

\* Meltzoff, A.N., & Moore, M.K. (1994). Imitation, memory, and the representation of persons. *Infant Behavior and Development* 17, 83-99.

\* \*Vouloumanos, A., & Werker, J.F. (2004) Tuned to the signal: The privileged status of speech for young infants. *Developmental Science*, 7, 270-276

\*\*\* Meltzoff, A.N., & Moore, M.K. (1989). Imitation in the newborn infants: Exploring the range of gestures imitated and the underlying mechanisms. *Developmental Psychology*, 25, 954-962.

# Examples of Typical Development

- ✦ 4 months of age, infants discriminate facial/vocal expressions of anger, fear, sadness, and happiness. \*

\*Montague, Diane P. F. & Walker-Andrews, Arlene. (2001). Peekaboo: A new look at infants' perception of emotion expressions.  
*Developmental Psychology*. 37(6), 826-838.



# Examples of Typical Development

- ✦ 9 months of age the infant is able to follow and direct the attention of adults to objects\*
- ✦ 12 months of age social referencing is developing\*\*
- ✦ 18 months of age toddlers infer an adult intended action by watching failed attempts\*\*\*

\* Tomasello, M. (1995) Joint attention as social cognition. In C. Moore & P.J. Punham *Joint attention: Its origins and the role in development* (pp. 103-130). Hillsdale, NJ: Erlbaum

\*\* Walden, T.A. & Ogan, T.A. (1988). The development of social referencing. *Child Development*, 59 1230-1240.

\*\*\* Meltzoff, A.N. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology*, 25, 954-962



# Examples of Typical Development

- ★ 24 months of age children adjust the language they use in conversation based on their understanding of what the listener knows\*

\* Tomasell, M., Farrar, M.J., & Dines, J. (1984). Children's speech revisions for a familiar and an unfamiliar adult. *Journal of Speech and Hearing Research*, 27, 359-363.

# Red Flags

- ✦ No babbling by 12 months
- ✦ No pointing or gesturing by 12 months
- ✦ No single words by 16 months
- ✦ No two word phrases by 24 months
- ✦ Loss of previously acquired skills, especially language

- ✦ Filipek, PA, Accardo, PJ, Ashwal S, et al. Practice parameter: screening and diagnosis of autism-report of Quality Standards Subcommittee of the American Academy of Neurology and the Child Neurology Society. *Neurology*. 2000; 55: 468-479

# American Academy of Pediatrics (AAP) Policy Statement

★ In 2007 AAP developed specific recommendations for surveillance and screening for early identification of autism

- ★ American Academy of Pediatrics, Plauche Johnson, C., Myers, S.M., and the Council on Children with Disabilities. Identification and Evaluation of Children with Autism Spectrum Disorders. *Pediatrics*. 2007;120(5): 1183-1215.
- ★ American Academy of Pediatrics, Myers, S.M., Plauche Johnson, C., and the Council on Children with Disabilities. Management of children with autism spectrum disorders. *Pediatrics*. 2007; 105 (5): 1162-1182

# What happens when the child goes to the pediatricians

## ★ Surveillance

- ★ Process in which health care professionals aim to identify children who may have developmental problem challenges

## ★ Screening

- ★ Administration of a brief standardized tool aiding the identification of children at risk of a developmental disorder.



# Diagnosis

- ✦ Autism can be detected early
- ✦ Trained professional make reliable and stable diagnosis by age two, yet national average of diagnosis remains between the age of four and five
- ✦ Parents report concerns about their child's development prior to age three yet find physicians delay referrals

Wiggins LD, Baio J., & Rice C (2006). Examination of the time between first evaluation and first autism spectrum diagnosis in a population-based sample. *Journal of Developmental & Behavioral Pediatrics* Apr;27(2 Suppl):S79-87.

# AAP Recommendations

- ✦ It is recommended that an autism specific screening tool is administered to 18 and 24 or 30 month old children regardless of risk factor

# Act Early Regional Summit November 2008

- ✦ Develop state teams to initiate and/or enhance state wide early identification, diagnosis, and services provisions and coordination for families with Autism Spectrum Disorder

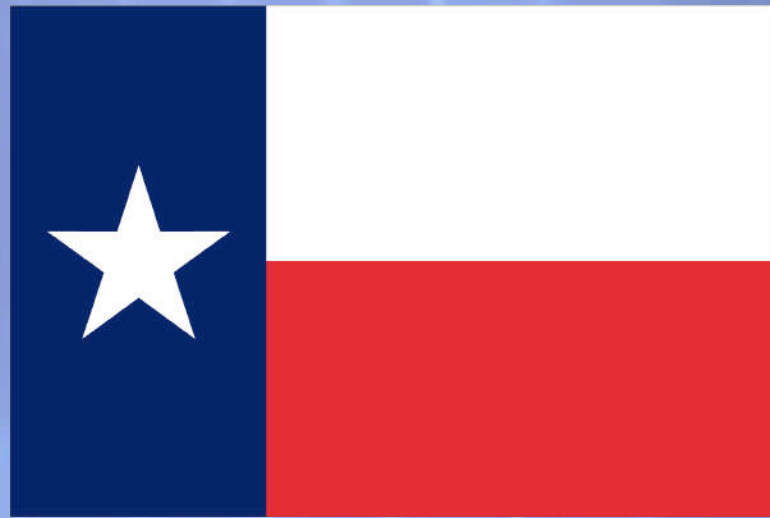
# Act Early Regional Summit November 2008

- ✦ Understand opportunities, challenges, and barriers to early identification and diagnosis
- ✦ Enhance partnership between Center of Disease Control (CDC), Health Resources and Service Administration (HRSA), and Association of University Centers on Disabilities (AUCD)
- ✦ Create national web-based forum to disseminate promising evidence based practices to use in screening, assessment, and treatment



# Texas State Plan for Individuals with Autism Spectrum Disorders

★ Developed by The Texas Council on Autism  
and Pervasive Developmental Disorders



# Texas State Plan

- ✦ Considered the first plan to serve Texans with Autism
- ✦ Goal to create a statewide infrastructure that coordinates research and timely appropriate and cost efficient lifespan services to individuals with Autism Spectrum Disorders

# Identifying Gaps in Policy

- ✦ Consideration may be given to the following issues:
- ✦ Better information about ASD and the symptoms given to the public, parents, health care providers, child care and early childhood education providers, and others that interact with children;
- ✦ Best practices in educating and training health care providers and other providers that interact with children on the availability and proper use of appropriate developmental screening tools that screen children for ASD;
- ✦ Barriers to the use of developmental screening tools such as reimbursement for health care providers' costs and other possible impediments;

# Identifying Gaps in Policy

- ✦ Benefits of having linkages between health care providers and other entities providing early intervention, child care, and educational services for children with ASD;
- ✦ Differences in the recognition and diagnosis of symptoms of ASD for children from different racial and ethnic groups; and
- ✦ Consistent, statewide implementation of the best practice guidelines for screening, diagnosis, and assessment of ASD.



# Act Early Subcommittee

- ✦ Ann Levine, Psy.D. Texas Child Study Center
  - ✦ Janet D. Morrison, RN, MSN
  - ✦ Texas Center for Disabilities Studies
- ✦ Pam Rollins, Ed.D. Associate Professor at the University of Texas at Dallas Callier Center for Communication Disorders
- ✦ Donald Smith, Ph.D. Texas Early Childhood Education Coalition Director of Research and Public Policy
  - ✦ Jo Webber, Ph.D., Professor, Associate Dean of Academic Affairs for the College of Education, Texas State

# A Recommended Strategic Plan Specific for Autism

- ✦ All children in Texas will be screened for ASD using a standardized autism-specific screening tool.
- ✦ Parents will receive written and verbal results of the screen
- ✦ If results are positive or there is continued concern, parents will be assisted in obtaining the appropriate referral for diagnostic clarification

# A Recommended Strategic Plan Specific for Autism

- ✦ For children entering ECI between 12 and 17 months administer the *Communication and Symbolic Behavior Scales Developmental Profile-toddler checklist (CSBS-DP)*
- ✦ M-Chat at 18 months and 24 months
- ✦ Early Head Start/Head Start, preschools or daycare programs use CSBS-DP for children ages 12-17 months, use M-CHAT for children 18-24 months



# Communication and Symbolic Behavior Scales Developmental Profile-toddler checklist (CSBS-DP)

Amy M. Wetherby, Ph.D., CCC-SLP, &  
Barry M. Prizant, Ph.D., CCC-SLP

- ★ Screening tool that assists in the determination of the communicative competence of children with a functional communication age between 6 months and 24 months.
- ★ Measures 7 language predictors in children
  - ★ Emotion and eye gaze
  - ★ Communication
  - ★ Gestures
  - ★ Sounds
  - ★ Words
  - ★ Understanding
  - ★ Object use



# Questions from CSBS-DP

- ★ Emotion and Eye Gaze

When you look at and point to a toy across the room, does your child look at it?

- ★ Sounds

Does your child use sounds or words to get attention or help?

*Communication and Symbolic Behavior Scales  
Developmental Profile by Amy M. Wetherby & Barry M.  
Prizant 2002 by Paul H Brookes Publishing Co., Inc. All  
rights reserved.*

# The Modified Checklist for Autism in Toddlers M-CHAT

- ✦ 23 questions
- ✦ **Age range: 16-30 months**
- ✦ Goal: Identify children at risk for ASD
- ✦ If a child fails 2 or more critical items or when any 3 items are failed, the M-CHAT is failed
- ✦ Not all children who fail the checklist will meet criteria for a ASD diagnosis
- ✦ 1999 Diane Robins, Deborah Fein, & Marianne Barton

# Critical Items from the M-CHAT

- ✦ Does your child take an interest in other children?
- ✦ Does your child ever use his/her index finger to point, to ask for something?
- ✦ Does your child ever bring objects over to you (parent) to show you something?

✦ 1999 Diane Robins, Deborah Fein, & Marianne Barton

# Critical Items from the M-CHAT

- ✦ Does your child imitate you? (e.g. you will make a face-will your child imitate it?)
- ✦ Does your child respond to his/her name when you call?
- ✦ If you point at a toy across the room, does your child look at it?

✦ 1999 Diane Robins, Deborah Fein, & Marianne Barton



# A Recommended Strategic Plan Specific for Autism

## **Post Screening Referral**

- ✦ All children who have a positive screen or concerns continue to exist will be referred for follow-up evaluation. Referrals will be made as appropriate to:
  - ✦ Interdisciplinary team or qualified assessment personnel if team evaluation is not available
  - ✦ Early Childhood Intervention (age dependent)
  - ✦ Local School District (age dependent)
  - ✦ Audiology Evaluation
  - ✦ Texas Autism Resource Center

# Diagnosis

A Recommended Strategic Plan Specific for Autism

- ✦ Based on best practices
- ✦ Assessment team- preferably an interdisciplinary team with expertise in ASD and knowledge of evidenced-based practices for ASD interventions

# Diagnosis

A Recommended Strategic Plan Specific for Autism

## ✦ Evaluation

- ✦ Includes health/developmental/behavioral histories, physical examination, developmental and psychometric evaluation, assessment of non-verbal social communication behaviors, and laboratory investigation to search for known etiology or coexisting condition(s)
- ✦ Assessment of possible parent/family support needs.



# Diagnosis

- ✦ Autism Diagnostic Observation Scale (ADOS) by Catherine Lord, Ph.D., Michael Rutter, M.D., FRS, Pamela C. DiLavore, Ph.D., and Susan Risi, Ph.D.
- ✦ ADOS is considered the “gold standard” for diagnosis



# ADOS

- ✦ This semi-structured assessment assesses toddlers to adults, from children with no speech to adults who are verbally fluent who may have ASD.

- ✦ Western Psychological Services
- ✦ [http://portal.wpspublish.com/portal/page?\\_pageid=53,70384&\\_dad=portal&\\_schema=PORTAL](http://portal.wpspublish.com/portal/page?_pageid=53,70384&_dad=portal&_schema=PORTAL)

# ADOS

- ✦ The ADOS consists of various activities; the clinician observes social and communication behaviors associated with the diagnosis of pervasive developmental disorders.
- ✦ The ADOS includes four modules, each requiring 35 to 40 minutes to administer.

✦ Western Psychological Services

✦ [http://portal.wpspublish.com/portal/page?\\_pageid=53,70384&\\_dad=portal&\\_schema=PORTAL](http://portal.wpspublish.com/portal/page?_pageid=53,70384&_dad=portal&_schema=PORTAL)

# ADOS

- ✦ ADOS activities for a child who is nonverbal to single word utterances
  - ✦ Free play
  - ✦ Response to name
  - ✦ Joint Attention
  - ✦ Bubble Play
- ✦ Anticipation of a Routine With Objects
  - ✦ Responsive Social Smile
  - ✦ Anticipation of Social Routine
- ✦ Functional and Symbolic Imitation
  - ✦ Birthday Party
  - ✦ Snack

# Diagnostic Outcomes

A Recommended Strategic Plan Specific for Autism

- ✦ Results of assessment will provide:
  - ✦ Diagnostic clarification
  - ✦ Profile of child's strengths and challenges
  - ✦ Profile of child's developmental level
  - ✦ Recommendations for evidenced-based developmental and educational interventions



# What Comes Next?

A Recommended Strategic Plan Specific for Autism

- ✦ Child is referred to the appropriate treatment team/specialists

- ✦ Speech and language pathologists
- ✦ Behavior specialists
- ✦ Occupational therapists
- ✦ Physical therapists
- ✦ Psychologists
- ✦ Social workers
- ✦ Nutrition specialists
- ✦ Medical providers
- ✦ Early intervention specialists
- ✦ Educational specialists

# Communication

A Recommended Strategic Plan Specific for Autism

- ✦ Communication will be ongoing among the family and service providers.
- ✦ Parents/families will receive information regarding parent training opportunities and other family support services that may be available.

# Intervention, Support, & Services

## A Recommended Strategic Plan Specific for Autism

- ✦ All children (0-5) who screen positive for ASD or are diagnosed with ASD have timely access to the appropriate quality intensive, early evidenced-based interventions from highly qualified professionals who have specific expertise in the treatment of autism implementing scientifically proven effective therapy based on the finding of the diagnostic evaluation.



# National Research Council

Characteristics of the most appropriate intervention for a given child must be tied to that child's and family's needs.

National Research Council (2001) Educating Children with Autism. Committee on Educational Interventions for Children with Autism. C Lord and JP McGee, eds. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press



# National Research Council

- ★ Primarily for preschool programs, the following features are critical:
  1. entry into intervention programs as soon as an autism spectrum diagnosis is seriously considered;
  2. active engagement in intensive instructional programming for a minimum of the equivalent of a full school day, 5 days (at least 25 hours) a week, with full year programming varied according to the child's chronological age and developmental level

★ National Research Council (2001) Educating Children with Autism. Committee on Educational Interventions for Children with Autism. C Lord and JP McGee, eds. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press

# National Professional Development Center on Autism Spectrum Disorders

Promote optimal development, learning,  
and achievement for infants, preschoolers,  
elementary, and secondary students with  
ASD and support for their families through  
use of evidence-based practices

[http://www.fpg.unc.edu/~autismPDC/resources/resources\\_public\\_ebp.cfm](http://www.fpg.unc.edu/~autismPDC/resources/resources_public_ebp.cfm)

# National Professional Development Center on Autism Spectrum Disorders

- \* Computer-Aided Instruction
- \* Differential Reinforcement
- \* Discrete Trial Training
- \* Extinction
- \* Functional Behavior Assessment
- \* Functional Communication Training
- \* Naturalistic Interventions
- \* Parent-Implemented Interventions



# National Professional Development Center on Autism Spectrum Disorders

- \* Peer-Mediated Instruction And Intervention
- \* Picture Exchange Communication System (PECS)
  - \* Pivotal Response Training
  - \* Prompting
  - \* Reinforcement
  - \* Response Interruption/Redirection



# National Professional Development Center on Autism Spectrum Disorders

- \* Self-Management
- \* Social Narratives
- \* Social Skills Training Groups
- \* Speech Generating Devices  
Voca
- \* Stimulus Control

# National Professional Development Center on Autism Spectrum Disorders

- \* Structured Work Systems
  - \* Task Analysis
  - \* Time Delay
  - \* Video Modeling
  - \* Visual Supports

- ★ [www.blinkx.com/video/autism-supernanny-part-3/AAYLVn7mXzl9X2UzvBa2-Q](http://www.blinkx.com/video/autism-supernanny-part-3/AAYLVn7mXzl9X2UzvBa2-Q)
- ★ [www.youtube.com/watch?v=juAfl3BCN7c&feature=related](http://www.youtube.com/watch?v=juAfl3BCN7c&feature=related)

# Thoughts about the future

★ "People who work together will win, whether it be against complex football defenses, or the problems of modern society"

Vince Lombardi