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Autism Spectrum Disorder: Latest in Prevalence, Diagnosis and Interventions

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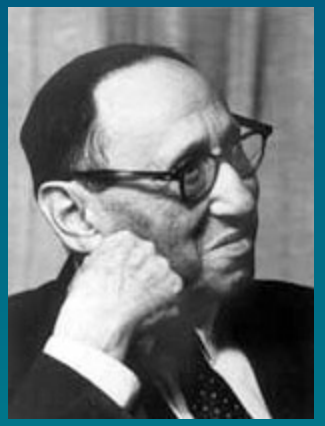
DISCLOSURES: NONE

Historical Background

- Early Infantile Autism (Kanner, 1943)
- 11 Children
- Inability to develop relationships
- Extreme aloofness
- Delay in speech development
- Repeated simple patterns of play activity



Prevalence of Autism

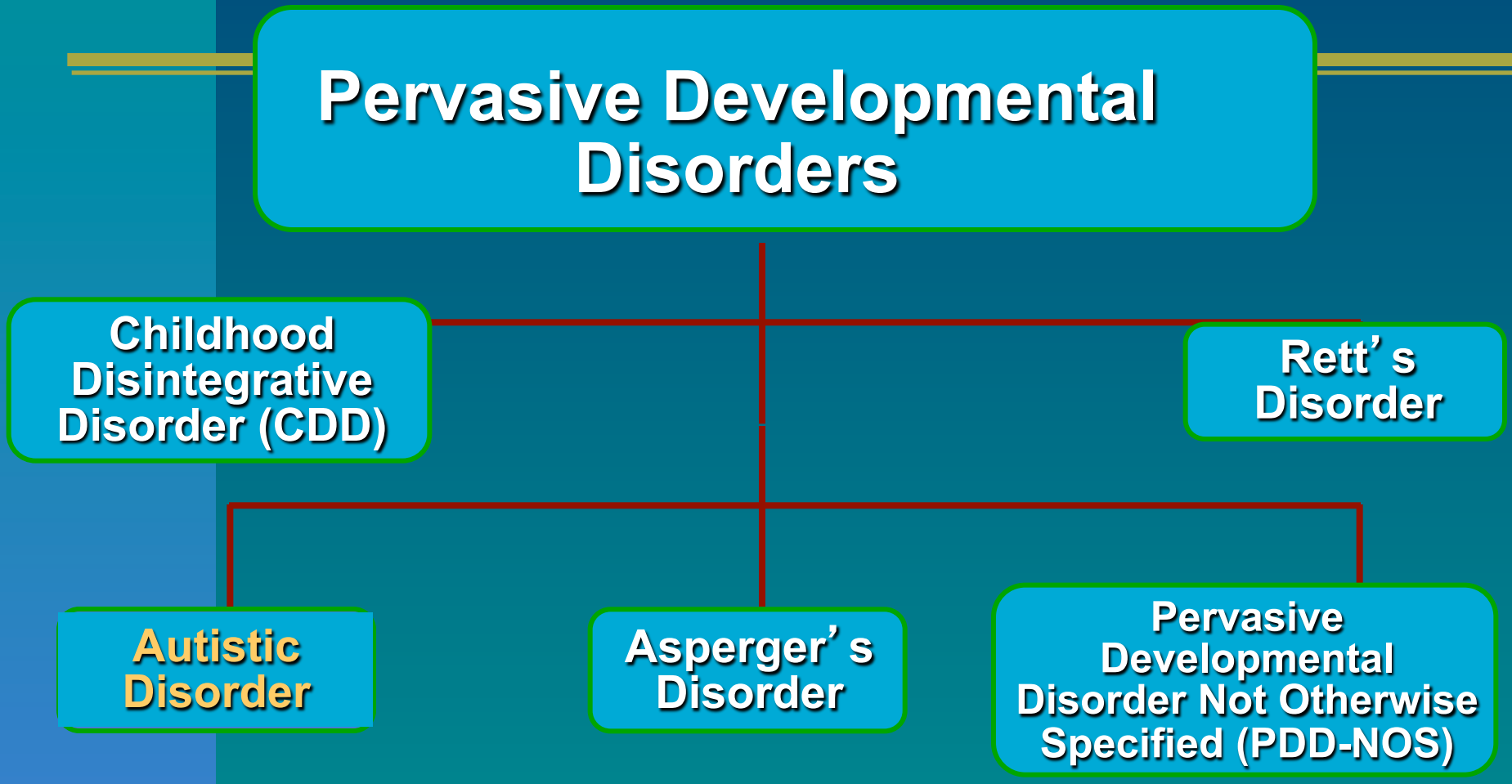
- 2-5/10,000 (DSM -IV TR, 2000)
- 5-10/10,000 (Gillberg and Wing, 1999)
- 1/68
- 4 to 5 boys : 1 girl
- In Intellectual Disabilities 8.9% - 11.7%

CDC DATA

Identified Prevalence of Autism Spectrum Disorder

ADDM Network 2000-2010
Combining Data from All Sites

Surveillance Year	Birth Year	Number of ADDM Sites Reporting	Prevalence per 1,000 Children (Range)	This is about 1 in X children…
2000	1992	6	6.7 (4.5 – 9.9)	1 in 150
2002	1994	14	6.6 (3.3 – 10.6)	1 in 150
2004	1996	8	8.0 (4.6 – 9.8)	1 in 125
2006	1998	11	9.0 (4.2 – 12.1)	1 in 110
2008	2000	14	11.3 (4.8 – 21.2)	1 in 88
2010	2002	11	14.7 (14.3 – 15.1)	1 in 68



*ASD is not a *DSM-IV TR* definition but reflects categorization in the general public.

Tidmarsh L et al. *Can J Psychiatry*. 2003;48:517-525; *DSM-IV TR*. Washington, DC: American Psychiatric Association; 2000.

Autism Spectrum Disorder in DSM 5

- Persistent deficits in social communication and social interaction across multiple conditions as manifested by the following, currently or by history:
  - Deficits in social-emotional reciprocity
  - Deficits in nonverbal communicative behaviors used for social interaction
  - Deficits in developing, maintaining and understanding relationships

Autism Spectrum Disorder in DSM 5

- Restricted, repetitive patterns of behavior, interests or activities as manifested by two of the following, currently or by history:
  - Stereotyped or repetitive motor movements, use of objects or speech
  - Insistence on sameness, inflexible about routines, or ritualized behaviors
  - Highly restricted, fixated interests
  - Hper or Hyporeactivity to sensory input

Autism Spectrum Disorder in DSM 5

- Symptoms must be present in the early developmental period
- Symptoms cause clinically significant impairment in social, occupational, or other important area of functioning
- These disturbances are not better explained by ID or global developmental delay

Key Differences Between DSM IV TR and DSM 5

- Shift from Categorical to Dimensional
- Autism Spectrum Disorder instead of Autism, Asperger's Disorder, Childhood Disintegrative Disorder & PDDNOS
- Rett's Disorder more on medical domain and different trajectory

Key Differences Between DSM IV TR and DSM 5

- Two Key Domains instead of Three
- Criteria A: Deficits in Social Communication & Social Interaction
- Criteria B: Restricted, Repetitive patterns of behaviors, interests, or activities
- Criteria B includes Sensory issues
- Criteria C: Symptoms present in Early Childhood
- Criteria D: Symptoms impair everyday functioning

Key Differences Between DSM IV TR and DSM 5

- Specifiers
- With or Without accompanying ID or Language Disorder
- Associated with medical or genetic condition (for example seizures, fragile X)
- With Catatonia
- ASD and ADHD can be diagnosed together in DSM 5

Key Differences Between DSM IV TR and DSM 5

- Level of Severity
- Level 1: Requires support, without support, significant deficits in social communication
- Level 2: Requires substantial support, marked deficits in social communication
- Level 3: Requires very substantial support, minimal social communication

Onset of Autism

- In most cases (> 50%) parents are worried in first year of life
- In almost 90% of cases parents are worried by age 2
- Common presenting problems include speech delays, worries that child may be deaf, problems with social interactions

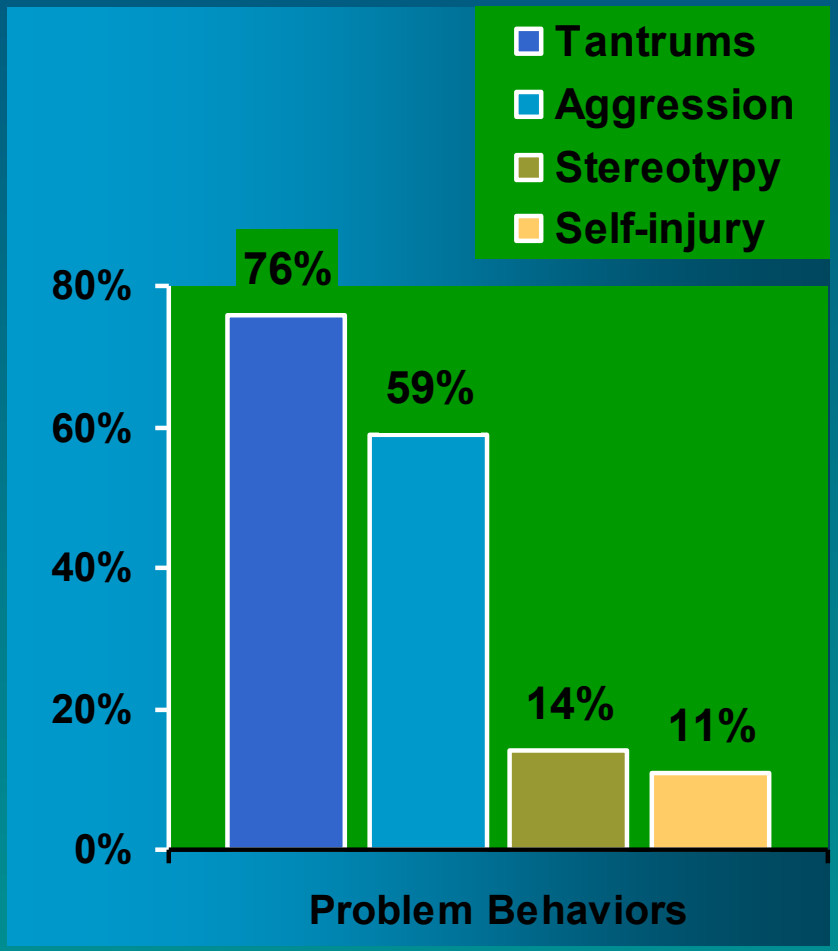
Other Features

- Intellectual Disability
- Seizures
- Sensitive to loud sounds, light, touch
- Attention problems
- Hyperactivity
- Sleep problems
- Food preferences

Problem Behaviors in Autism

- Stereotypy, self-injury, and aggression are the problem behaviors most often identified for intervention
- Early use of behavioral interventions may result in an 80-90% reduction in problem behaviors

Meta-analysis of 9 studies



Horner RH et al. *J Autism Dev Disord.* 2002;32:423-446.

Medical Comorbidities

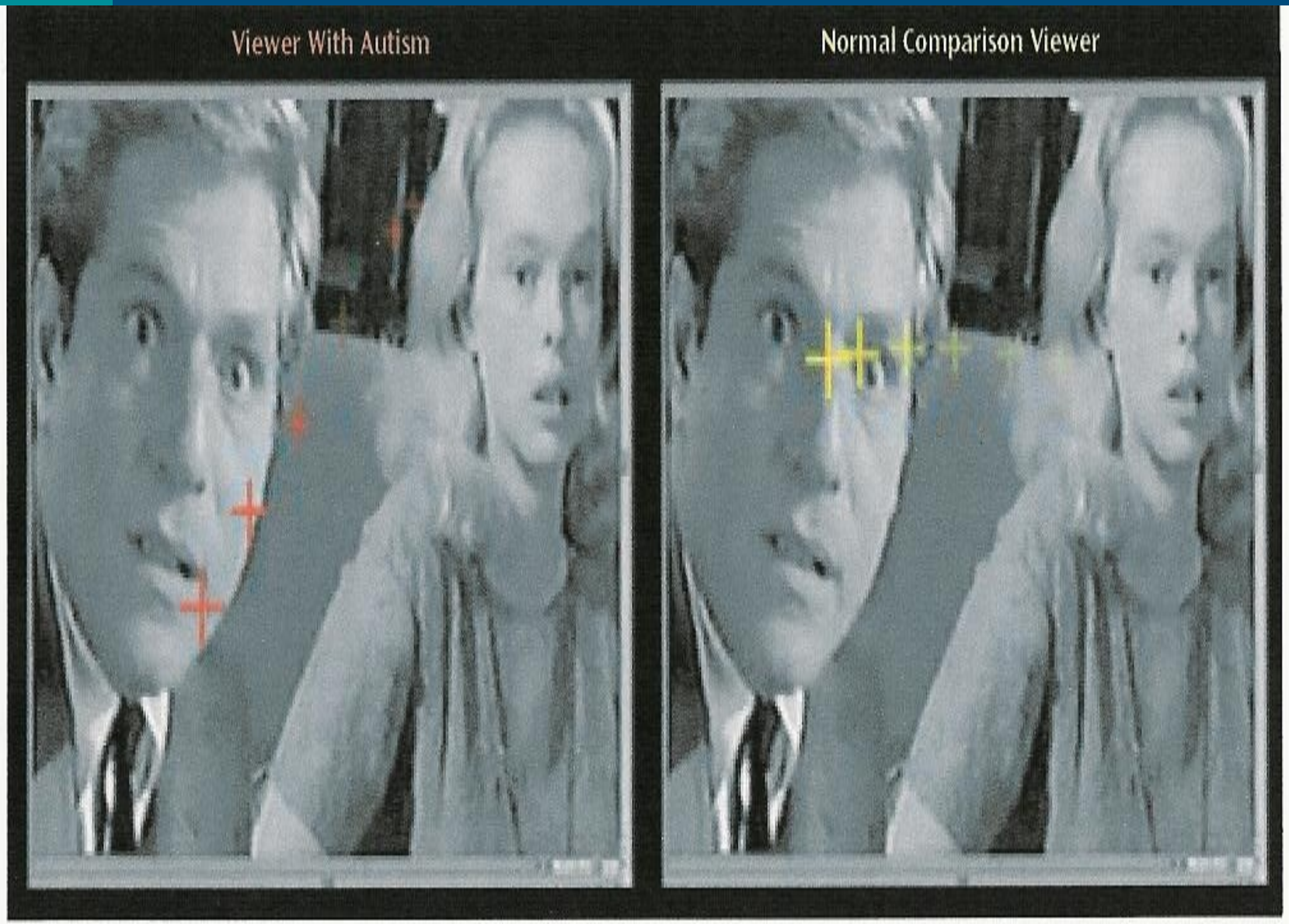
- Rate of medical conditions in autism 10 – 15%
- Fragile X Syndrome
- Tuberous Sclerosis
- Neurofibromatosis
- Down Syndrome

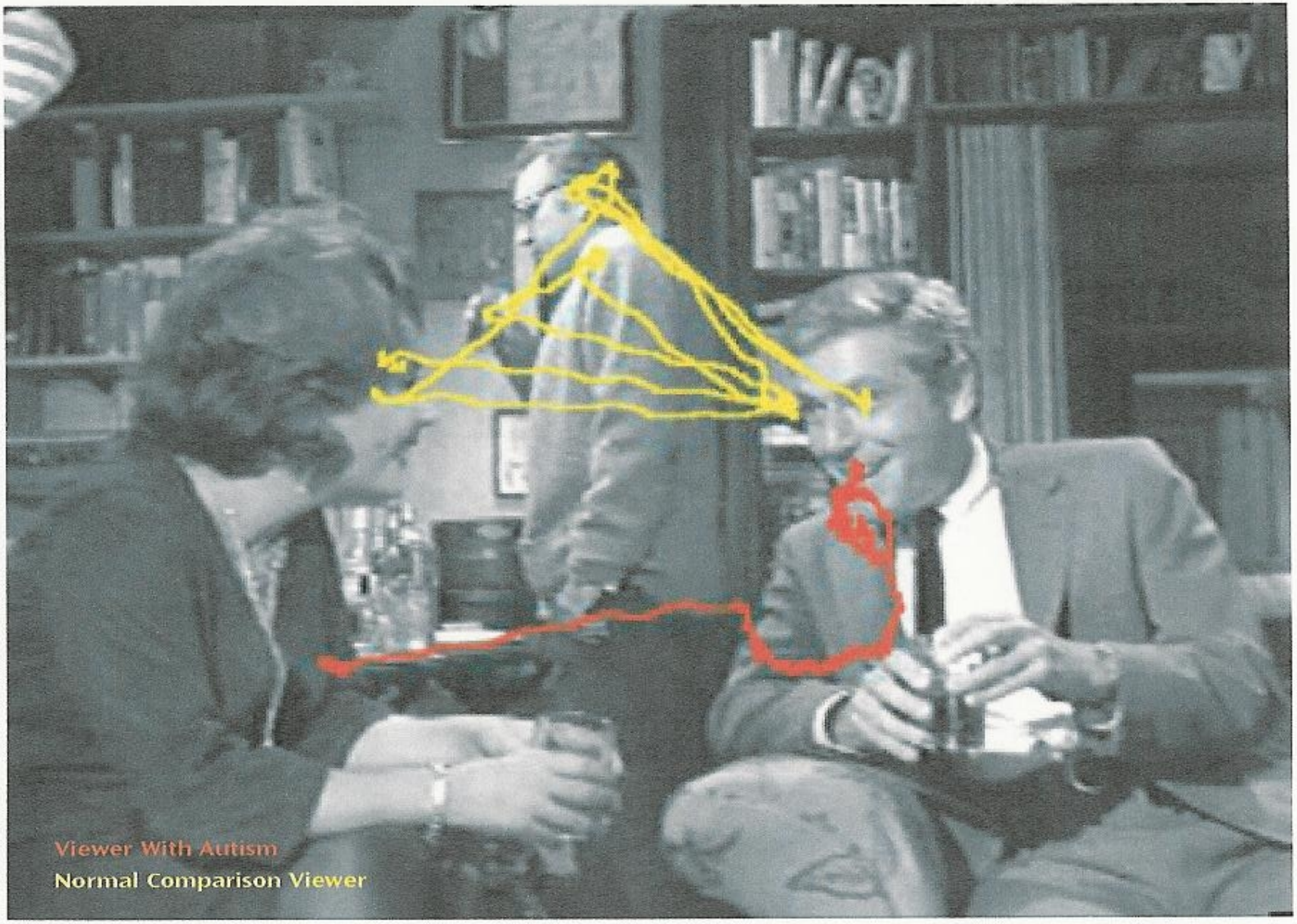
Environmental Factors

- No scientific proof that any vaccine or combination of vaccines can cause autism (Institute of Medicine, 2004)
- No increase associated with MMR vaccine
- Food allergies
- Gastrointestinal abnormalities

Eye Tracking Studies


Viewer With Autism
Normal Comparison Viewer


Viewer With Autism
Normal Comparison Viewer


Viewer With Autism
Normal Comparison Viewer


Viewer With Autism
Normal Comparison Viewer

Assessment

- Interdisciplinary approach
- Input regarding child related to different settings
- Family input
- Input from other sources

Assessment

- Social relatedness
- Development of language and communication
- Stereotypies
- Aggression
- Self Injurious behaviors
- Hyperactivity
- Inattention
- Sleep

Assessment

- Pregnancy and neonatal history
- Developmental history
- Medical history
- Family and psychosocial factors
- School history
- Intervention history
- Observation

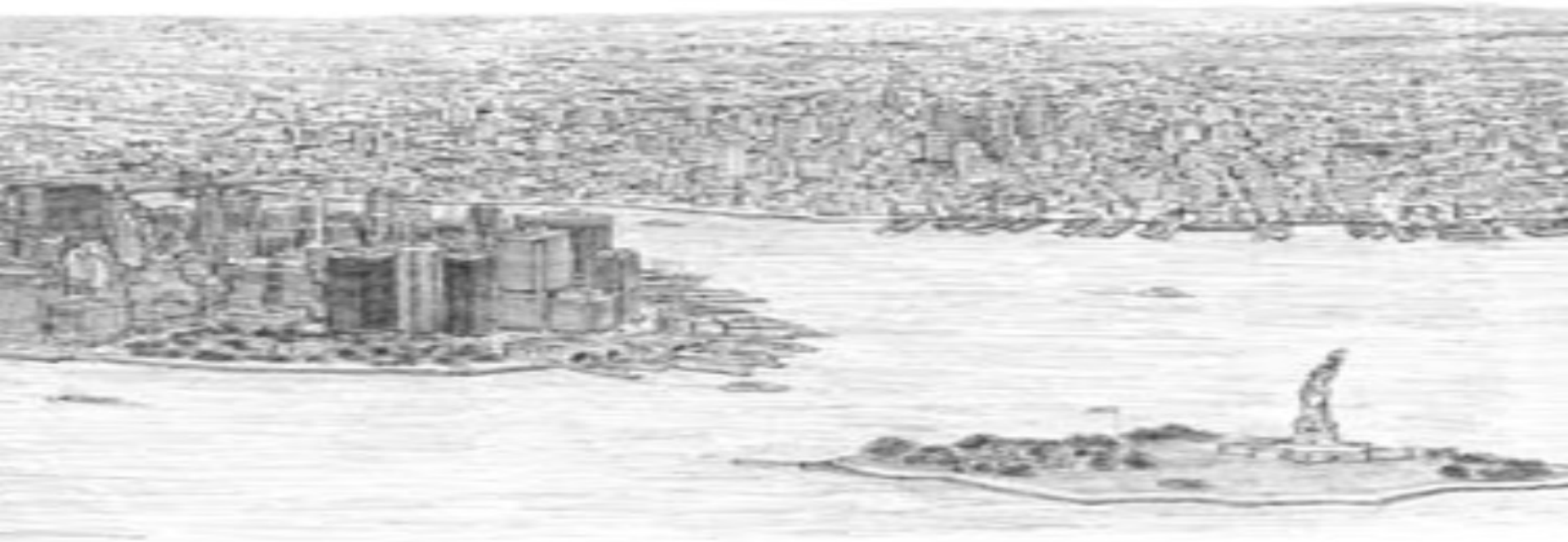
Assessment

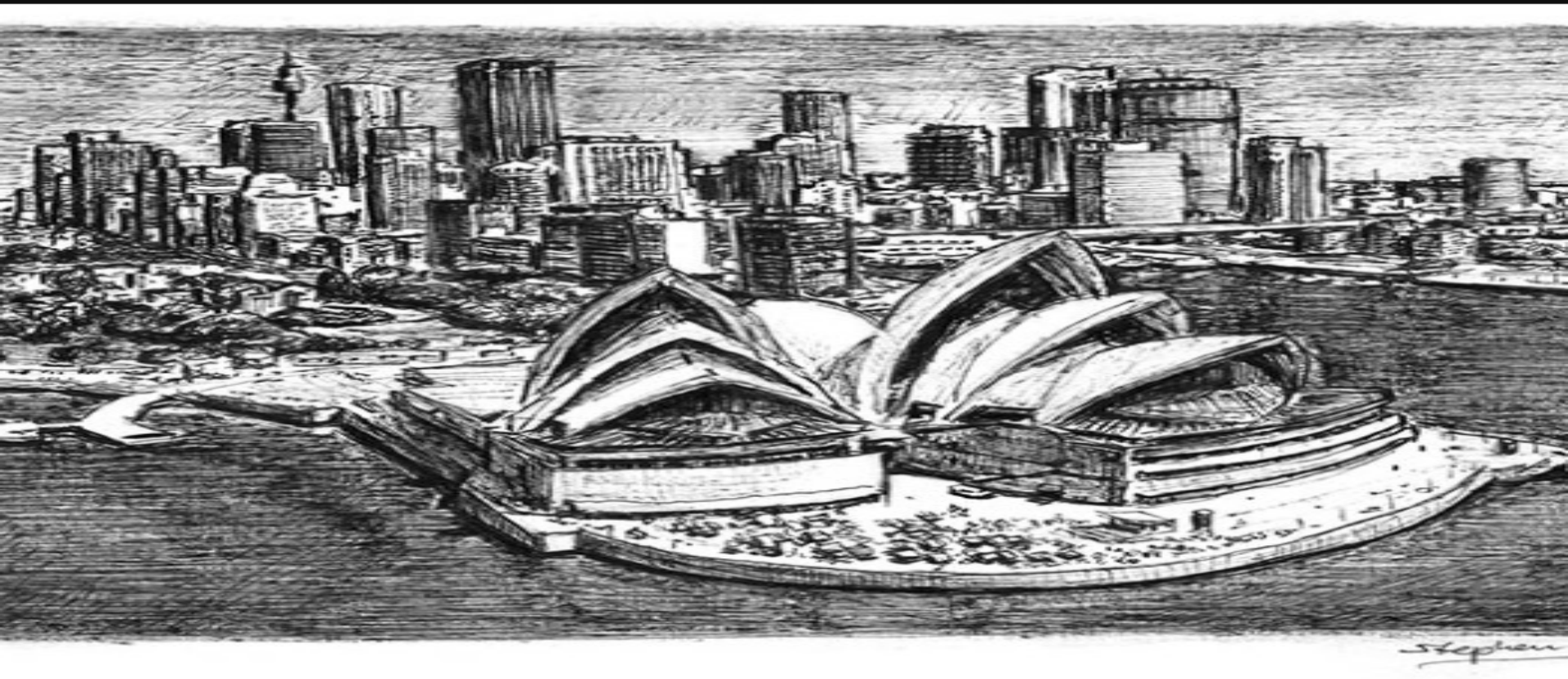
- Hearing and visual examination
- Neurological
- Laboratory (Fragile X)
- Psychological assessment
- Speech/language
- OT/PT

Assessment Scales

- Childhood Autism Rating Scale (CARS)
- Autism Behavior Checklist (ABC)
- Autism Diagnostic Interview (ADI)
- Autism Diagnostic Observation Schedule (ADOS)
- Vineland Adaptive Behavior Scale

St Paul's Cathedral

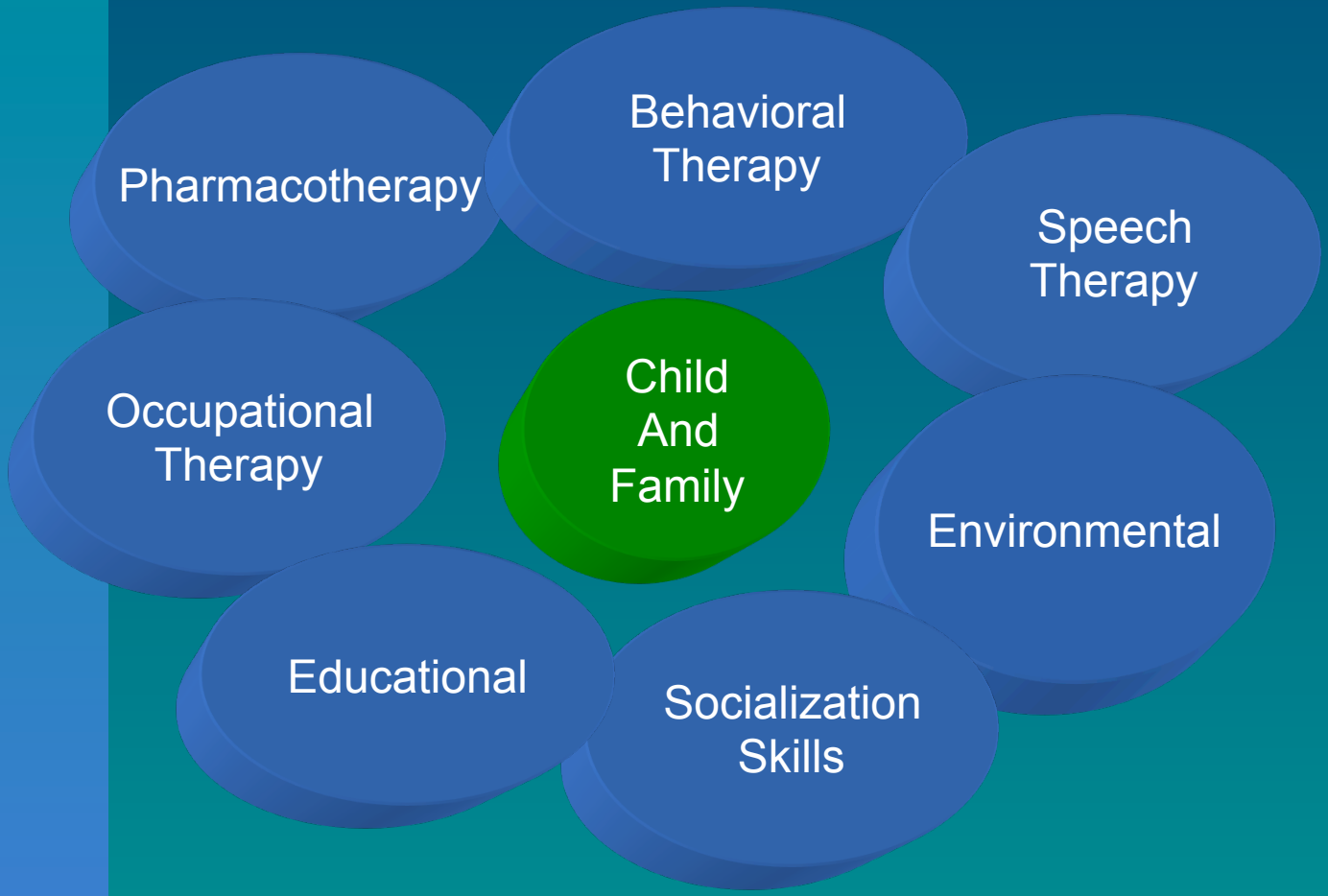




Can You Make It to The End

https://www.youtube.com/watch?v=Lr4_dOorquQ

Autism Treatment Is Multimodal



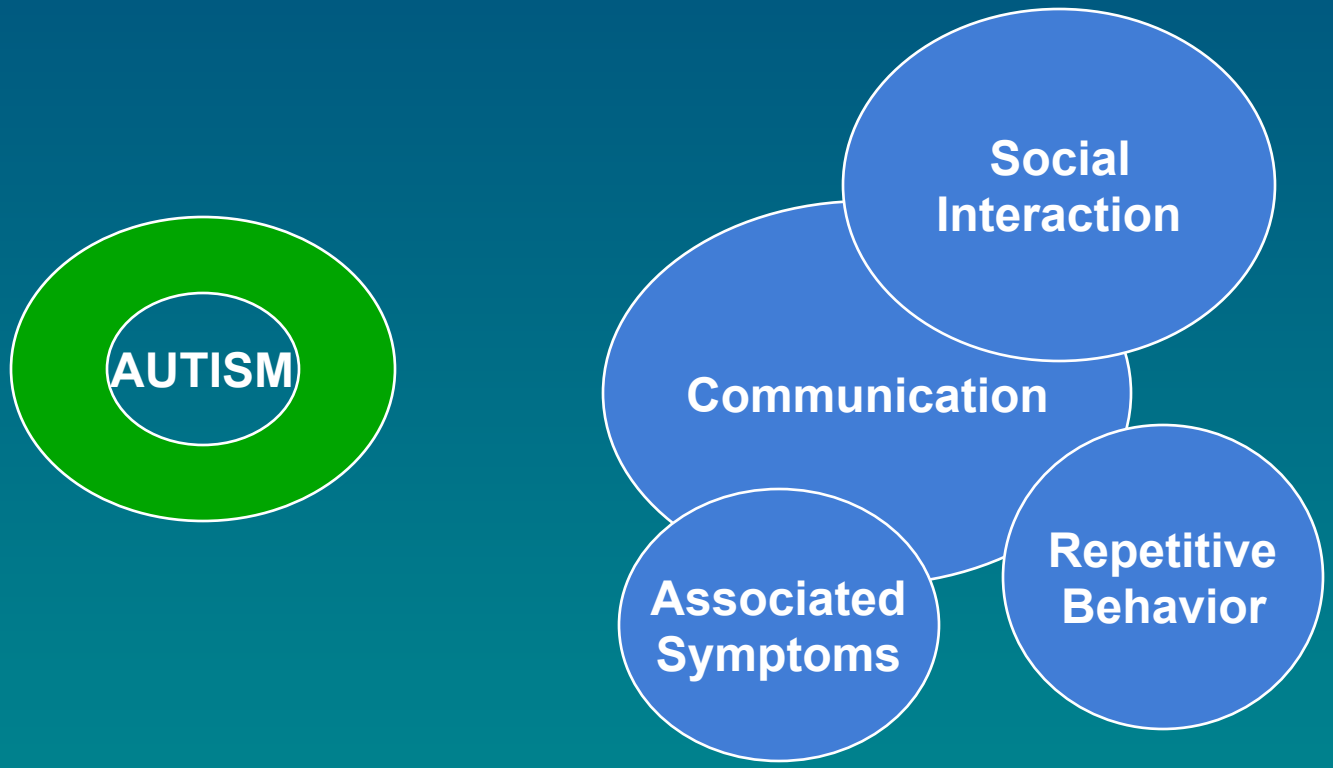
Early Intervention

- Early intervention is extremely important
- Planned and intensive intervention
- Interdisciplinary, integrated, family involvement
- Teaching of specific skills, individualized
- Child engagement is central

Family Involvement/Support

- Family involvement at every stage of process
- Support groups for parents and siblings
- Basic information from school and professionals
- Internet and other resources

Pharmacotherapy



Indications for Pharmacotherapy

- Inattention, hyperactivity, impulsivity
- Aggression, irritability, temper tantrums, self injury
- Repetitive behaviors
- Mood instability
- Anxiety
- Insomnia

Acute Risperidone Trial (RUPP)

- NIMH RUPP Network
- 101 children, 82 boys and 19 girls
- Mean age 8.8 years ± 2.7 years (Range 5-17 years)
- 8 week double blind, randomized
- Mean dose 1.8 mg/day (Range 0.5-3.5mg/d)
- Improvement : Risperidone 69% (34/49) versus Placebo 12% (6/52)

RUPP Autism Network. N Engl J Med. 2002;347:314-321

Acute Risperidone Trial (RUPP)

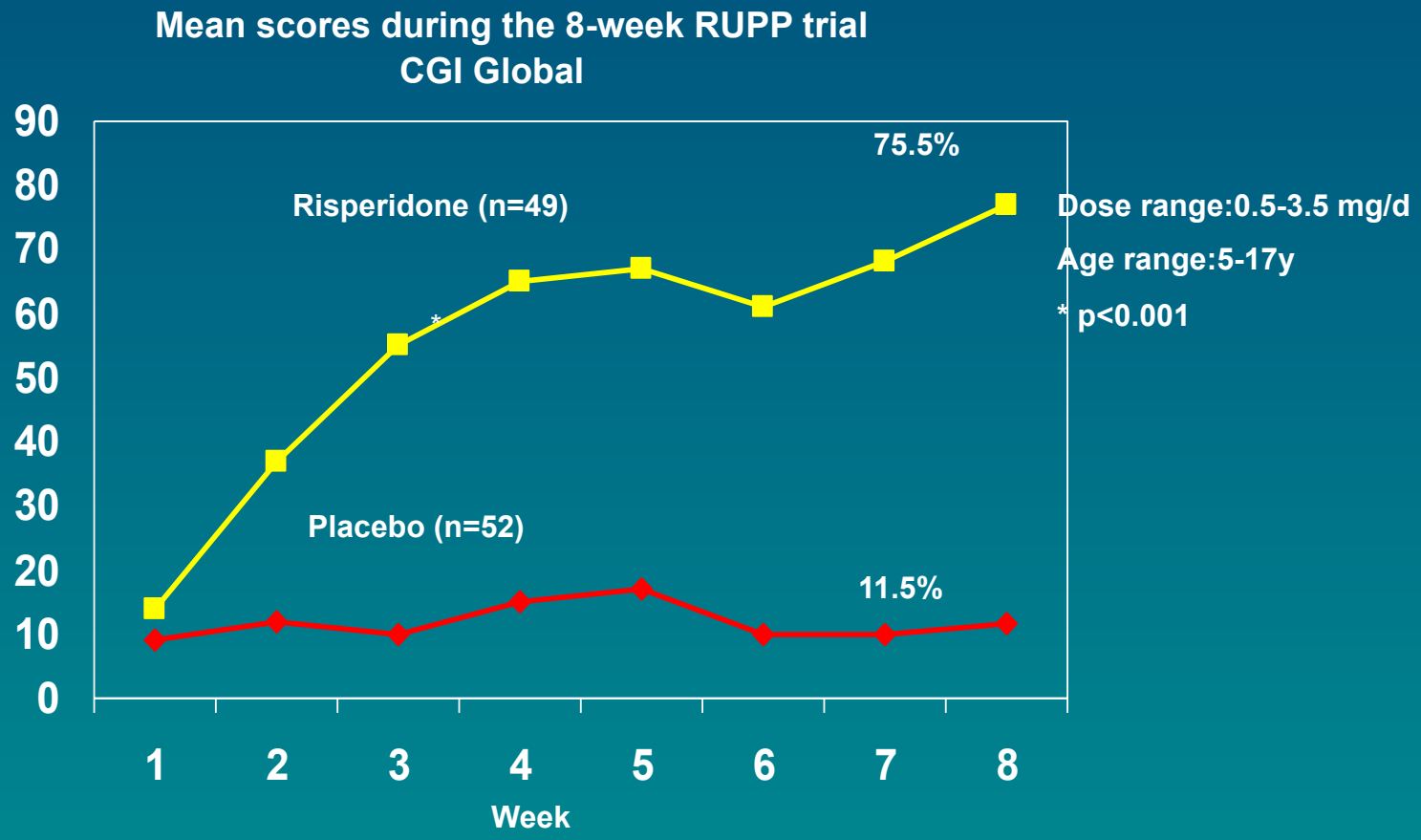
- Improvement in self injury, aggression, irritability, stereotypy and hyperactivity
- Mean increase in weight

  Risperidone 2.7 ± 2.9 kg

  Placebo 0.8 ± 2.2 kg
- Adverse effects include increase appetite, fatigue, drowsiness, drooling
- No EPSE'S

RUPP Autism Network. N Engl J Med. 2002;347:314-321

Risperidone Effectiveness: RUPP Trial

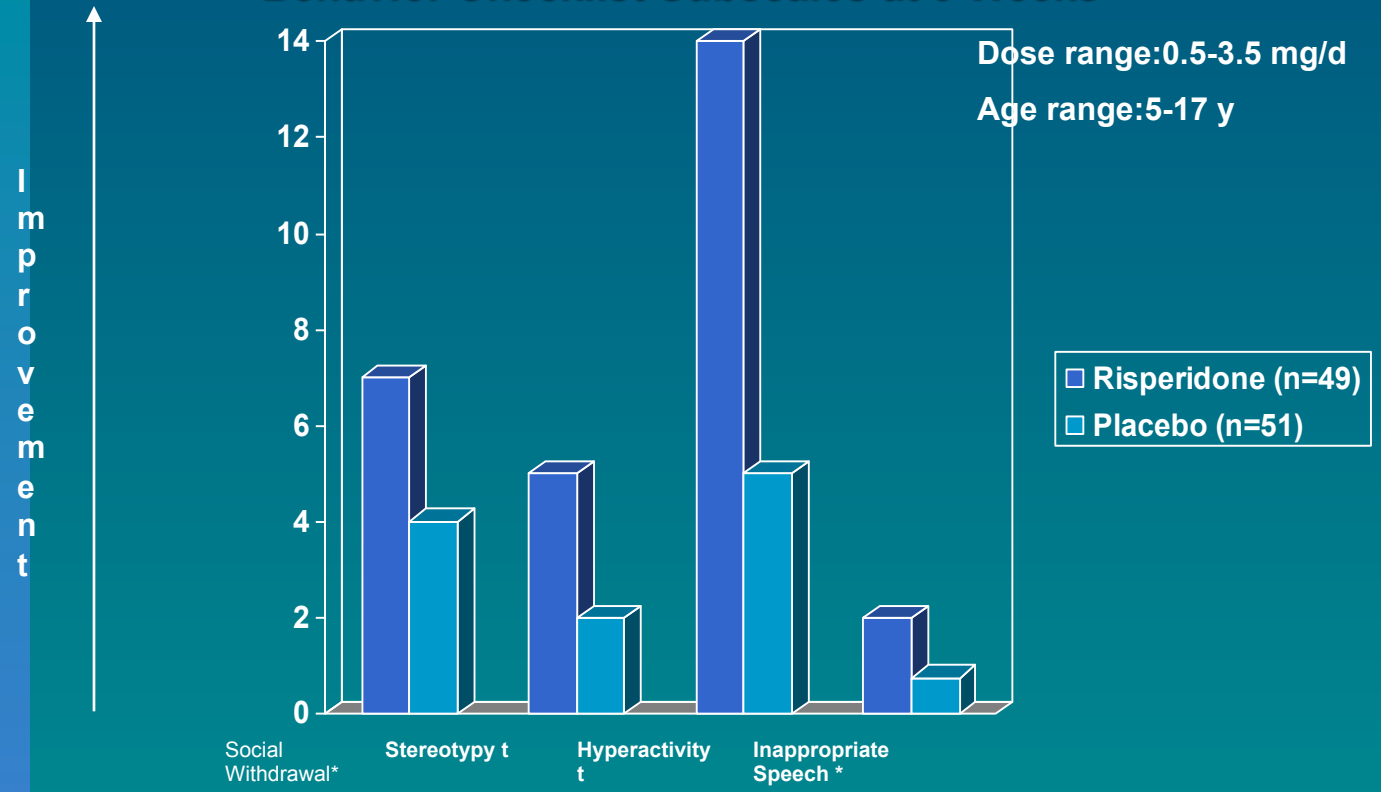


Percentage of Children 'much improved' or 'very much improved' on the Clinical Global Impression Scale

RUPP Autism Network. N Engl J Med. 2002;347:314-321

Secondary Outcomes of the RUPP Trial

Differences Between Baseline and End Point Scores on the Aberrant Behavior Checklist Subscales at 8 Weeks



*p=0.03; t p=0.001

RUPP Autism Network. N Engl J Med. 2002;347:314-321

Long Term Risperidone Trial (RUPP)

- 16 week extension, open label
- 63 children (49 boys, 14 girls)
- Mean Risperidone dose 2.08 mg/day
- 51 (81%) children completed the 16 week trial
- 82.6% Responders on CGI-I
- Most frequent adverse effects include nasal congestion, increase appetite, coughing

RUPP Autism Network.

Discontinuation Risperidone Trial (RUPP)

- 36 children entered this phase of the study
- 8 weeks in duration
- Children randomized to ongoing Risperidone vs gradual placebo substitution (dose reduced by 25% per week)
- Relapse Rate: Placebo 62.5% vs Risperidone 12.5%
- Numerous other open label and controlled studies showing effectiveness.

Aripiprazole

- Double Blind Palcebo Controlled study over 8 weeks
- 218 children and adolescents (age 6 – 17 years) with Autistic Disorder
- 4 Groups : Placebo, 5mg, 10 mg, 15 mg
- Starting Dose 2mg/day (week 1), 5mg/day (week 2) then 5mg/day weekly increments
- Response: Significant Improvement on ABC-Irritability and CGI with all 3 dosages
- AE: Sedation, drooling, tremor
- Weight Gain: Aripiprazole: 1.3-1.5 kg/Placebo: 0.3 kg

Marcus R, et al. J AM ACAD CHILD ADOLESC PSYCHIATRY 2009;48:11, 1110-1119

Case

- 9 year old boy with history of bipolar disorder and ADHD
- Behavioral problems including aggression, biting, spitting, hyperactive, concentration problems, poor sleep
- On admission taking Quetiapine, Lithium and Atmoxetine
- History of developmental delays

Case

- Poor eye contact, chooses solitary activities, poor social interactions
- Delayed speech, poor social communication
- Repetitive behaviors
- Difficulty in transitions
- Sensitive to physical touch

Predictive Factors for Outcome

- Presence of communicative speech by age 5
- Absence of Intellectual Disability
- Early intervention

Summary

- Comprehensive Assessment
- Alliance with the families
- Child & Family at the Center of the Treatment
- Rule out Medical and Environmental reasons for behavioral issues
- Incorporate behavioral approaches
- Medications: start low and titrate slow
- ASD more sensitive to side effects
- Monitor impact on child and family

National Initiatives

- Qatar's National Autism Plan
- WISH Autism Forum
- Renad Academy
- QBRI
- Sidra

“CHILDREN LEARN TO CARE BY EXPERIENCING GOOD CARE”