Report for Autism Task Force
2/23/2010
Autism Society of Minnesota
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Understanding the Case for Early Intervention

I. Background

Early view of autism spectrum disorders in Minnesota

1945- early 1970 autism: a mental health condition, not treatable

no services from DHS or MDE

parents were blamed for the condition—plague parents

1974- PL-94-142 Special Education Law—programs in 3 districts

1980's waiver funding/group home development

II. Changes from1990 – 2010 in our understanding

Research on how infants learn --new information

Statistical learning- infants detect patterns and make meaning

Learning requires active and affective engagement

Early visual and auditory sensitivity

Understanding of brain development – research on tasks and brain imaging

Structures: temporal lobe (face perception, eye gaze)

amygdala (emotional recognition)

parts of the prefrontal cortex (social cognition)

Autism research now tells us

no autism signature in parts of brain affected:

cerebellum (attention and motor behavior)

amygdala (emotion)

parts of temporal lobe (language and social perception)

prefrontal cortex (attention, planning, abstract thought, social behavior)

abnormal connectivity – connections between neurons

neural networks-poor connectivity (Murias,Webb,Greenson & Dawson, 2007)

large heads (Courchesne, 2007) -active research currently

cerebellar differences- reduced number of Purkinje cells (Bauman & Kemper, 1994)—affects connectivity

social brain network difference

brain imaging studies show brain activity during tasks-reduced brain activity while engaged in social tasks (Dawson. Carver,Meltzoff, Panagiotides, & McPartland, 2002)

mirror neuron system – active in brain-by observing imitation and gesture and by imitating another

person (Williams, White, Sudendorf & Perrett, 2001)- problem with connectivity
neurochemistry differences

Current understanding: the brain changes in early childhood--brain regions and connectivity

***Brain changes are considered reactive- not core features of autism- changes are associated to the altered life patterns & are perhaps preventable (Dawson,2008)**

III. Case for Intensive Early Intervention

A. Research finding emerged slowly
NIH funding
Low incidence 4-5/10,000
Difficulty developing diagnostic tools
B. 1987 Lovaas study reported 49% children – improvement in IQ/ mainstreamed into regular education- began the case for early intervention

C. 2009 Early Start Denver model—developmental (relationship-based) and applied behavior analysis principles/2 years/ 48 children- all younger than 30 months
Improve in IQ-17 pts, adaptive behavior and autism diagnosis
Randomized controlled trial

D. *State of the Science in Autism Report* 1994: young children 2-4, 15 hours/week/ intensive 1:1 ratio, lasting 1-2 years showed improvement in communication, social behavior, IQ. Behavior
Journal of Autism and Developmental Disorders, 1996

E. *The Effectiveness of Early Intervention, Early Intervention in Autism,* Dawson and Osterling
8 model early intervention programs: common elements:
skills: ability to attend to elements in the environment
ability to imitate others
ability to comprehend and use language
ability to play appropriately with toys
highly supportive teaching environments
generalization strategies
need for predictability and routine
functional approach to problem behavior
transition to preschool classroom
family involvement
Intensive: 27 hours on average

F. First Words Project, Florida State University. Wetherby and Woods
Developmental Behavioral Intervention
Intervention is better early: 3.5 better than5
Intensity matters
Active engagement for 25 hours/week
Low teacher student ratio 2:1
Family participation is essential
Goals should be individualized and documented every 3 months

Predictors of later outcomes:
Caregivers showed signs of synchronization during play: better joint attention
Strongest predictor of language gain-caregiver utterances following child's attention focus and allowing child to continue ongoing toy engagement

G. *Educating Children with Autism,* National Research Council 2001
Little evidence concerning the effectiveness of different comprehensive treatments
No adequate comparisons of the effectiveness of difference comprehensive treatments

good research comparing specific therapies to less intense, nonspecific interventions
intensive instruction – early
active engagement for a minimum of 5 days/week
planned teaching: 1:1, 2:1
Instruction periods of 15 to 29 minutes intervals

H. Current practice in Minnesota
0-3 school district services – not ADS specific/ not intensive
early childhood services—ASD programming/not intensive
parents use community providers if they have resources/knowledge
cost: school district, MA- waivers and PCA, insurance

IV. Models to consider for young children:

School districts
ABA providers
Fraser day treatment
St. David's day treatment
Celebrate the Spectrum- DIR, Floortime