Autism: What is it?

- Triad of symptoms (< age 3):
  - Reduced social behavior
  - Abnormal language
  - Repetitive, restricted behaviors

Associated Features: seizures, mental retardation, GI disorder, dysmorphic appearance, regression
The Autism Spectrum

Classical Autism

Low Functioning:
- No language
- Low IQ
- Asocial
- Hand Flapping
- Dysmorphic

High Functioning:
- Verbal
- Academically successful
- Socially awkward
- Clumsy
- “Geeky”

Asperger’s Syndrome
What we know...

- Developmental brain disorder

- Brain looks grossly normal

- Symptoms often not apparent before 12 mos

- Rate of growth abnormal

- Long connections < short connections?
What we know...

- Genetic factors are important
  - Genetic diseases (Fragile X, Rett, Tuberous Sclerosis) associated with autism
  - MZ (identical) twins have 3X higher concordance than DZ (fraternal) twins
  - Specific genes found to increase risk in 10 – 20% of ASD children
  - Prevalence of ASD in boys > girls
What we know...

• Early behavioral interventions help

• Response is heterogeneous and unpredictable

• Some with early intervention lose diagnosis

• Autism is treatable!
What we know...

- ASD Prevalence is increasing (1992: 1 in 1500)

1 in 90; 673,000 children

CDC - ASD in 8 year olds:
- 2002: 1 in 150
- 2006: 1 in 110
- 2008: 1 in 88

California DDS on Autism:
- 12 fold inc from 1987 – 2007
- 13% annual growth
California DDS Increase in Autism Appears Specific

Figure 3: Cumulative Percentage Change of Autism, Cerebral Palsy, Epilepsy, and Mental Retardation over Two Decades

California DDS, 2009
More detected or **more affected**?

**Contributing factors:**
- Changing diagnostic criteria
- Better ascertainment
- Better services (social clusters)
- Higher paternal age
- Environmental factors??
What we know...

Myth busting #1: Not caused by refrigerator mothers

Myth busting #2: Not caused by thimerosal in vaccines (other environmental factors likely)

Myth busting #3: Not caused by single or simple genetic mutation (some spontaneous)

Myth busting #4: Not a single disorder
What we know...

- Developmental brain disorder
- Genetic factors play a role (males > females)
- Environmental factors play a role (prenatal)
- Early behavioral interventions are helpful
- Increased prevalence (now reported at about 1:88 for ASD)

Services will be a national challenge as
> 1 million children with autism become
> 1 million adults with autism