

Autism: What do we know?

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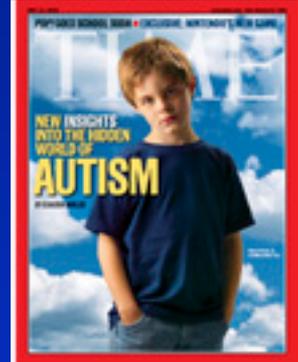
National Institutes of Health, DHHS



NIMH
National Institute
of Mental Health

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

Autism —————> Autisms

The Autism Spectrum

Classical
Autism

Asperger's
Syndrome

Low Functioning

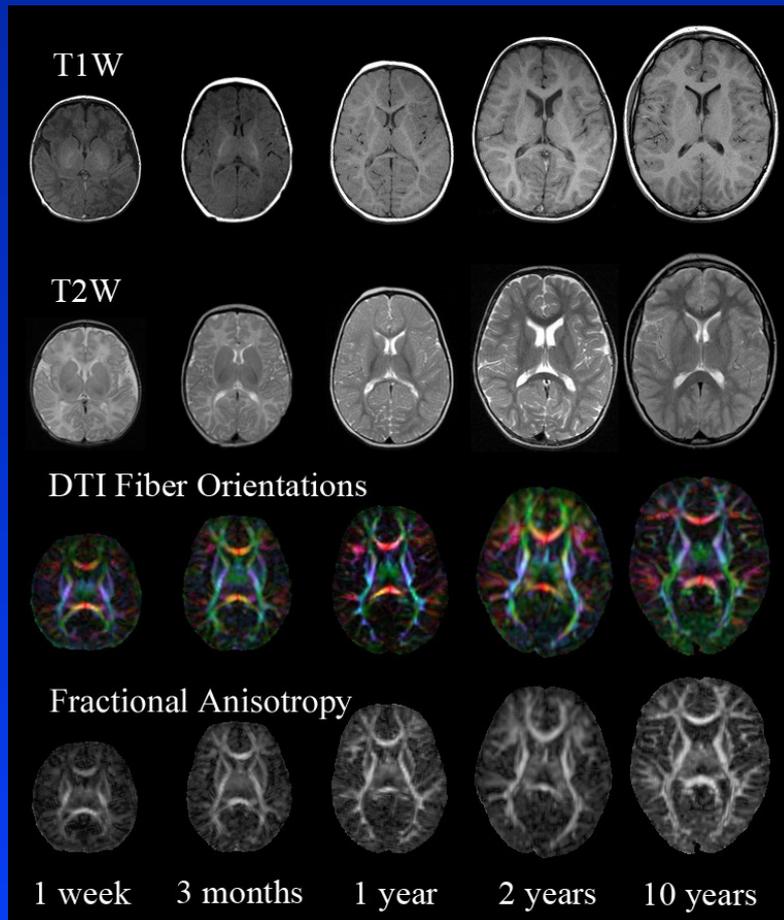
No language
Low IQ
Asocial
Hand Flapping
Dysmorphic

High Functioning

Verbal
Academically successful
Socially awkward
Clumsy
“Geeky”

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

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Meta-Analysis of Early Intensive Behavioral Intervention for Children With Autism

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Lovaas Institute for Early Intervention

- 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)

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1 in 90; 673,000 children

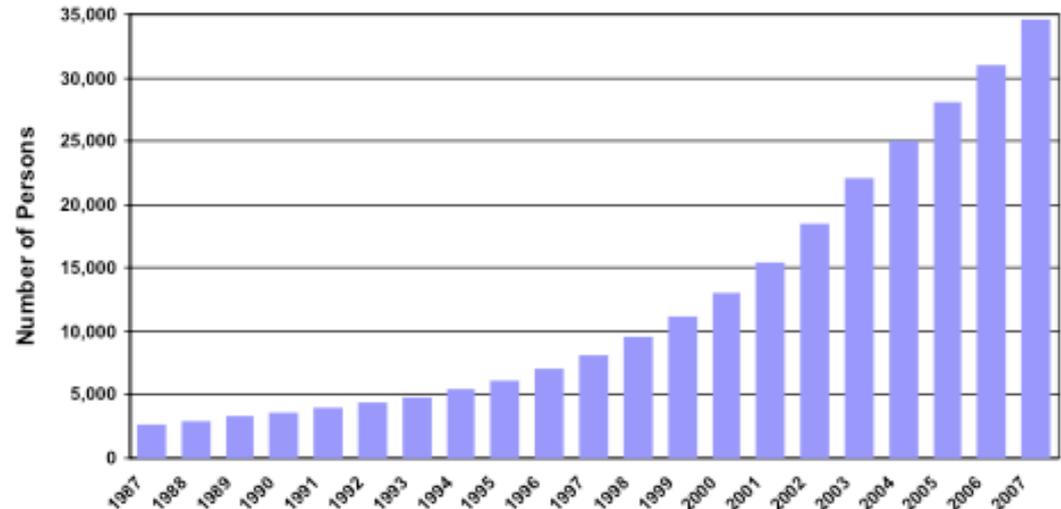
Prevalence of Parent-Reported Diagnosis of Autism Spectrum Disorder Among Children in the US, 2007

Michael D. Kogan, Stephen J. Blumberg, Laura A. Schieve, Coleen A. Boyle, James M. Perrin, Reem M. Ghandour, Gopal K. Singh, Bonnie B. Strickland, Edwin Trevathan and Peter C. van Dyck
Pediatrics 2009;124;1395-1403; originally published online Oct 5, 2009;
DOI: 10.1542/peds.2009-1522

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://www.pediatrics.org/cgi/content/full/124/5/1395>

Figure 2: Annual Frequencies of Persons with Autism from June 1987 - June 2007



CDC - ASD in 8 year olds:

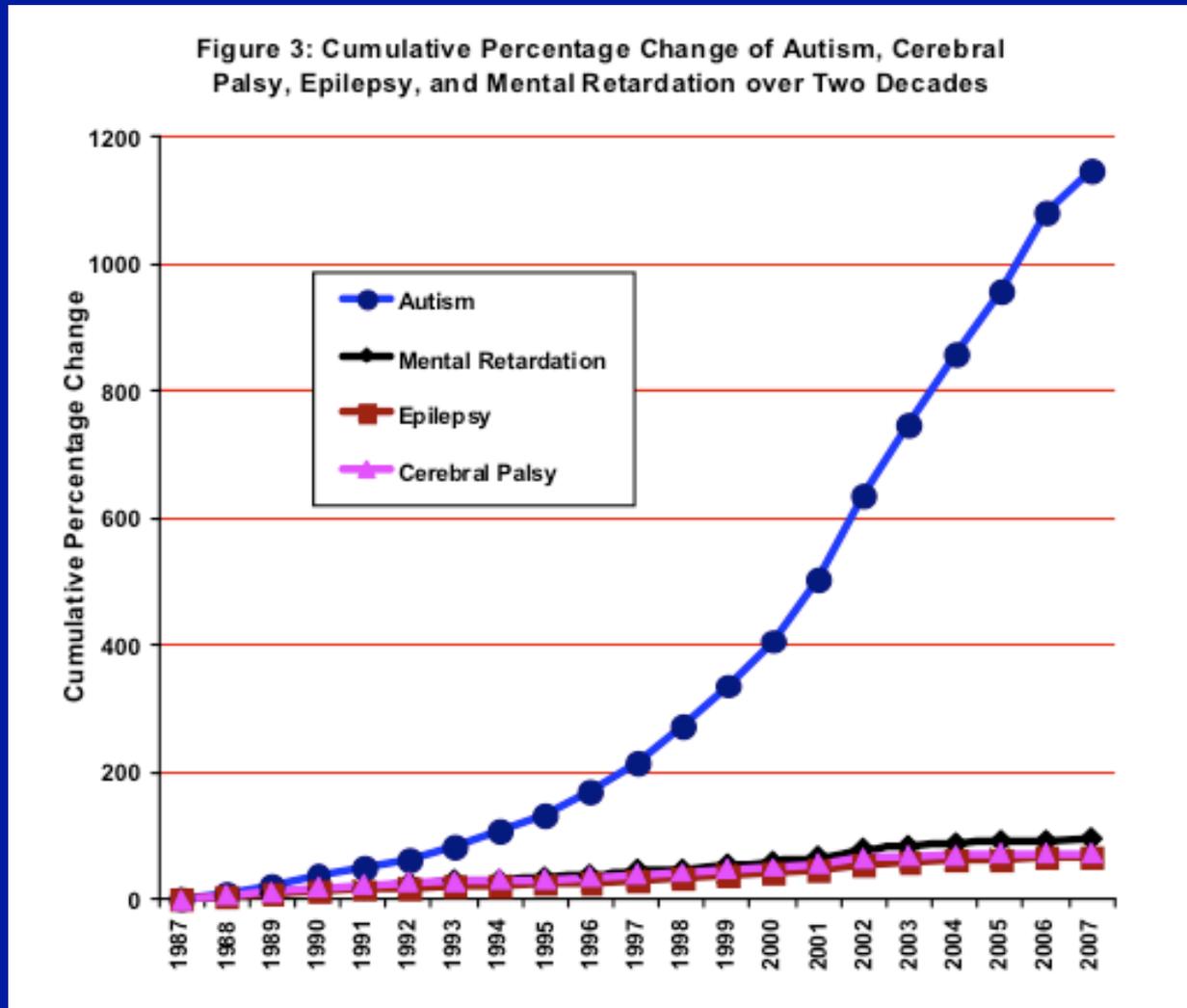
2002: 1 in 150

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



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