



# Special Care Dentistry

for the General Practice Resident:  
Practical Training Modules

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## ***Special Care Dentistry For the General Practice Resident Practical Training Modules***

- This educational modular series consists of eight evidence based Power Point presentations designed to give the general practice resident a global view of dental treatment for people with special needs. Approximately 300 references are listed throughout this work. The eight modules address the most important aspects of clinical medicine and dentistry required for treating a patient with special needs. Discussion of access and barriers to dental care, the need for special care dentistry in the pre and post doctoral dental curricula, along with assessment of the competency of participants are included in the modules. Upon completion of the modules, the participant should have the knowledge to assess a patient with special needs.
- The educational package is a previously piloted pre and post test exam. The modules are accompanied by “teacher’s notes” which are visible in each Power Point presentation. This format alternately allows the instructor to assign the series as a self-study project.

continued



**Special Care Dentistry  
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Practical Training Modules**

- A description of each module follows below:
- **Introduction to Special Patient Care:** discusses the definition of disability, the prevalence and incidence of disability, aspects of “normalization”, and the barriers to care. A list of resources is provided for the individual and family.
- **Special Care Dentistry/Legal and Ethical Issues:** discusses informed consent and various other types of consent, comprehensive medical history documentation, appropriate use of desensitization and restraint, communication/human rights issues, case law and detailed literature review of restraint.
- **Treatment Modalities/Treatment Planning for Patients with Special Needs:** discusses reasons for sedation, hospitalization OR cases, general anesthesia, pharmacological techniques, IV and enteral drugs.
- **Learning Disabilities/Mental Retardation and Down Syndrome:** discusses the causes and risk factors, diagnosis and intervention, physical findings and medical concerns, dental and craniofacial characteristics of people with learning disabilities, mental retardation and Down syndrome.
- **Neuromuscular Disorders/Cerebral Palsy and Muscular Dystrophy:** discusses types of cerebral palsy, risk factors, oral and dental findings, various forms of muscular dystrophy and treatment planning considerations.
- **Autistic Spectrum Disorders:** defines and describes the spectrum of autistic disorders including Pervasive Developmental Disorder and Asperger’s. A recent review of the literature regarding proposed etiologies (i.e.: genetic links, vaccines) is presented as well as suggestions for behavior management and treatment strategies.
- **Oral Manifestations/Genetic and Congenital Disorders:** discusses syndromology definitions, gene and chromosomal abnormalities, craniofacial disorders, dental and orthopedic conditions.
- **Seizure Disorders:** discusses definitions of seizures and epilepsy, risk, incidence and prevalence of seizures, classification and treatment of seizures, choice of medication therapies and practical considerations for dental treatment.
- Pre and post tests and the answer sheets are not included in the module series. Please contact Annette Shafer in the Office of Investigations and Internal Affairs at [annette.p.shafer@omr.state.ny.us](mailto:annette.p.shafer@omr.state.ny.us) to request a copy and we will forward it to you electronically.



# Treating People with Autism

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# What is autism?

- A **pervasive developmental disorder** defined behaviorally as a syndrome, consisting of:<sup>1</sup>
  - Impaired social interaction
  - Impaired communication skills
  - Activities, behavior and interests that are repetitive, restricted and/or stereotypic



# What is autism?

**Part of the larger diagnostic category**

**Autistic Spectrum Disorders (ASD)**

**aka**

**Pervasive Developmental Disorders (PDD)**



# What is autism?

- Diagnosis is **behaviorally** based
- No specific genetic, medical or laboratory tests available
- Enormous variation in behavioral patterns and severity of symptoms



# Commonly noted impairments<sup>1,2</sup>

- **Sensorimotor deficiencies**
- **Echolalia**
- **Deficiencies in symbolic thinking**
- **Self-injurious behaviors**
- **Intellectual disability (70%)**
- **Seizure disorders (approx 30% of adolescents with autism have had 2 or more seizures)**



# Classification of Autistic Spectrum Disorders<sup>1</sup>

- **Child Autism or Autistic Disorder**
- **Asperger Disorder**
- **Pervasive Developmental Disorder, NOS**
- **Rett Syndrome**
- **Childhood Disintegrative Disorder**





# Historical Perspective

- **1943: Kanner described a group of children with symptoms of “an extreme aloneness. . .and an obsessive desire for the preservation of sameness.” He used the term *autism* to describe the condition.**
- **1944: Asperger described 4 children with normal IQs and verbal abilities who had behavioral characteristics consistent with autism**



# Historical Perspective

- **1960s to 1970s: Neurobiologic studies associating convulsions and abnormal EEGs in children with autism**
- **1980s: Bauman demonstrated abnormalities in the frontal brain, hippocampus and cerebellum suggesting abnormal fetal brain development occurring between 12-30 weeks of fetal life**



# Historical Perspective

- **1985: Fragile X Syndrome identified**
- **1990s: Genetic studies in autism**
  - **Monozygotic twin studies: 70-80% concordance for autism**
  - **Dizygotic, same-sex twins: 5-10% concordance**
  - **Sibling recurrence risk: 4-8%**
  - **Associations of tuberous sclerosis, Prader-Willi and Angelman syndromes with autism demonstrated**



# Etiology

- **Etiology currently unknown, although many theories exist:**
  - **Genetic**
  - **Neurotransmitter defect (serotonin)**
  - **Infection**
  - **Metabolic errors**
  - **Immunologic disorders**
  - **Environmental (exposure to toxins in utero or early childhood)**



# Etiology

- **MMR Vaccine?**

**“It is clear that none of the epidemiological findings provide support for an association between MMR vaccine and ASD.”<sup>3</sup>**



# Etiology

- **Thimerosal?**
  - **Mercury, in high dosage can cause neurodevelopmental sequelae<sup>4</sup>**
  - **“ . . . The data do not allow testing of the different hypothesis of a rare, unusual, idiosyncratic response to thimerosal in individual children, although there is no available evidence to indicate that such a response actually occurs.”<sup>3</sup>**



# Genetic disorders associated with autistic behaviors

- **Fragile X Syndrome**
- **Rett Syndrome**
- **Tuberous Sclerosis**
- **Prader-Willi Syndrome**
- **Angelman Syndrome**
- **Various deletion, translocation, and duplication syndromes**



# Epidemiology

- **Original survey – 1966<sup>6</sup>**
  - **4 cases per 10,000**
- **Recent studies**
  - **Childhood autism: 27.2 per 10,000<sup>7</sup>**
  - **Autism: 7 cases per 10,000<sup>8</sup>**
  - **Autistic Spectrum Disorders: 30-60 per 10,000<sup>3</sup>**



# Epidemiology

- **Gender**
  - **Male to female ratios vary with IQ<sup>8</sup>**
    - **2:1 male to female in individuals with severe intellectual impairment**
    - **4:1 male to female in individuals with moderate intellectual impairment**



# Prevalence

- In 2000, the CDC reported a prevalence of 4.5-9.9 per 1,000 in the U.S.
- U.S. Department of Education estimates tha the diagnosis of autism is growing at a rate of 10-17% per year
- Worldwide prevalence of autism is consistent, but is reported to be 4x more prevalent in males compared to females



# Why the dramatic increase?

- **Better diagnosis**
- **Broader definition of Autistic Spectrum Disorders (ASD)**
- **Marked increase in diagnosis of ASD in individuals with average to high intellectual abilities (ie, Asperger Disorder)**



## Children with autism (ages 6-21) served by IDEA<sup>8</sup>

State	1992-93	2000-01	% Increase
California	1,605	10,557	558
Florida	582	3,926	575
Illinois	5	3,103	>6,000
New York	1,648	5,943	260
Texas	1,444	6,023	317



# Asperger's Disorder

- **First recognized as a distinct disorder in 1994**
- **Normal IQ**
- **No language or cognitive delay**
- **Impaired social interaction**
- **Individuals often display preoccupation with, or intense focus on, narrow interests or activities**



# Asperger Diagnostic Criteria<sup>1</sup>

- **Qualitative impairment in social interaction, manifested by at least 2 of the following:**
  - **Impairment in use of nonverbal behaviors (ie, eye contact, facial expression)**
  - **Failure to develop appropriate peer relationships**
  - **Lack of seeking to share enjoyment or interests with other people**
  - **Lack of social or emotional reciprocity**



# Asperger continued

- **Restricted repetitive or stereotyped behaviors, interests and activities, as manifested by at least one of the following:**
  - **Preoccupation with one activity or interest that is abnormal either in intensity or focus**
  - **Inflexible adherence to specific, nonfunctional routines or rituals**
  - **Repetitive and stereotyped motor mannerisms**
  - **Persistent preoccupation with parts of objects**



# Asperger continued

- **No clinically significant delay in language**
- **No clinically significant delay in cognitive development or age-appropriate self-help skills**
- **Criteria not met for another PDD of schizophrenia**



# PDD – NOS<sup>1</sup>

- **Impairment in social interaction**
- **Impairment in verbal and non-verbal communication**
- **Stereotypical behaviors often present**
- **The child does not meet all the diagnostic criteria for any of the autistic spectrum disorders**



# Childhood Disintegrative Disorder<sup>1</sup>

- **Children exhibit normal development for the first few years of life**
- **Regression of language, interest in social interaction and self-care abilities**
- **Developmental prognosis is worse than that for other PDDs**



# Rett Syndrome

- **X-linked genetic abnormality (MECP2 gene)**
- **Full syndrome seen only in girls. A few reports of males with mutated MECP2 gene who have similar symptoms to females**
- **Early development is normal**
- **Progressive CNS involvement – symptoms include autistic behaviors, intellectual disability, stereotypical hand wringing, spontaneous apnea**



# Medications<sup>11,12</sup>

- **Hyperactivity**
  - Methylphenidate (Ritalin, Concerta)
  - CNS stimulant; use vasoconstrictors with caution, low doses
- **Repetitive behaviors**
  - Fluoxetine (Prozac)
  - Sertraline (Zoloft)
  - Pimozide (Orap)
  - These drugs increase the sedative potential of other CNS depressants
    - Interact with “mycins”



# Medications<sup>11,12</sup>

- **Aggressive behaviors**
  - **Lithium (Eskalith)**
    - NSAIDS and metronidazole increase renal clearance time
    - Increased sedation when used with benzodiazepines
    - EKG changes, weight gain, hypothyroidism
  - **Carbamazepine (Tegretol)**
    - Decreased WBC and platelet counts
    - Interacts with “mycins,” propoxyphene & doxycycline
  - **Valproate/Valproic Acid (Depakene, Depakote)**
    - Liver function problems, hepatotoxicity
    - Leukopenia, thrombocytopenis, decreased fibrinogen
    - Interacts with “mycins,” ASA & NSAIDs



# Medications<sup>11,12</sup>

- Risperidone (Risperdal)
- Olanzapine (Zyprexa)
  - Both:
    - Increase sedation of other CNS depressants
    - Orthostatic hypotension
    - Motor disturbances (akathisias)



# Behavioral Challenges



- Short attention span
- Insistence on rigid routines
- Hyperactivity
- Easily frustrated
- Tantrums
- Echolalia



# Behavior Management

- **Before attempting treatment, ask parent/caregiver about patient's**
  - **Peculiarities/stereotypic behaviors**
  - **Ability to communicate**
  - **Sensitivity to noises**
  - **Sensitivity to touch**
  - **Sensitivity to artificial light**
  - **Behavior during previous medical/dental visits**





# Behavior Management

- Standard techniques
  - Tell-show-do
  - Immediate positive or negative reinforcement (paired with firmness, if necessary)
  - Hand-over-mouth not appropriate
  - Need to be *flexible* in trying different techniques



# Behavior Management

- **Other recommendations:**
  - **Modeling**
    - **Have a sibling demonstrate sitting in chair, opening mouth, having exam**
  - **Clear, short, simple sentences**
  - **Ignore inappropriate behavior**



# Behavior Management

*To papoose or not?*

**Some children with autism respond positively to gentle restraint; others respond negatively.**

**Need to determine appropriate use of restraint for each child on an individual basis.**





# Behavior Management

- **Grandin reviewed literature on deep touch pressure to patients with ASD<sup>14</sup>**
  - **Deep touch had a relaxing, calming effect, while light touch acted more as a stimulant to the nervous system**
  - **Overall results that firm touch, pressure have a calming and comforting effect.**





# Desensitization<sup>14,15,16</sup>

- Repetitive conditioning and reinforcement process before treatment is actually started
- Slow, step-wise approach described by many authors
- Allow patient to visit office, become accustomed to people, place, routine
- Gradual, slow exposure to the environment with non-threatening contacts



# Desensitization



- **Limitations**
  - **Manpower**
  - **Extensive time involvement**
  - **Financial concerns**



# Behavior Tips

- **Let patient sit in chair (in your chair, stool, etc.)**
- **Use a toothbrush to get patient to open for exam (patients do better with familiar items)**
- **Do not touch or pat patient if he/she has tactile issues**
- **Avoid sensory overload; use a quiet, private area**
- **Keep appointments short**
- **Keep appointments organized; try to maximize time spent with patient**
- **Don't keep patient in waiting area a long time**
- **Routine – same time of day, same personnel**
- **Play music if patient enjoys it**





# Behavior Tips

- **Minimize sudden movements – patient can be easily distracted and/or frightened**
- **Don't crowd patient**
- **Be careful with light – some patients have great sensitivity to light**
- **Encourage at home rehearsals for visit**
- **Remember compassion, empathy!**
- **Keep things in perspective - realize that a dental visit is just one small part of this family's dealing with their child's day-to-day life**





**Although this presentation has discussed common behavioral characteristics of people with autism, remember that every patient is an individual!**

**With the assistance of a parent or caregiver, try to determine which techniques will facilitate this individual's oral health care needs.**

**Flexibility and creativity on the part of the dentist and staff are key to providing optimal care to individuals with autism.**





# References

1. American Psychiatric Assoc. Diagnostic and statistical manual of mental disorders, 4<sup>th</sup> ed.
2. Friedlander A, et al. The pathophysiology, medical management, and dental implications of fragile X, Rett, and Prader-Willi syndromes. J Calif Dent Assoc. 2003;Sep:31(9):681-91.
3. Rutter M. Incidence of autism spectrum disorders: changes over time and their meaning. Acta Paediatrica 2005;94(1):2-15
4. Stratton K et al, editors. Immunization safety review: thimerosal-containing vaccines and neurodevelopmental disorders. Washington, DC: National Academies Press: 2001.
5. U.S. Food and Drug Administration, Center for Biologics Evaluation and Research. <http://www.fda.gov/CBER/vaccine/thimerosal.htm#t3>
6. Lotter V. Epidemiology of autistic conditions in young children. I: prevalence. Soc Psychiatry 1966;1:124-37
7. Honda H, et al, Cumulative incidence of childhood autism: a total population study of better accuracy and precision. Devel Med & Child Neuro 2005;47:10-18.



# References

8. Honda H, et al, Cumulative incidence of childhood autism: a total population study of better accuracy and precision. *Devel Med & Child Neuro* 2005;47:10-18.
9. Fombonne E. The epidemiology of autism: a review. *Psychol Med* 1999;29:769-86.
10. Bryson SE. In Cohen DJ, Volkmar FR, *Handbook of autism and pervasive developmental disorders*. 2<sup>nd</sup> ed. New York:Wiley 1997:370-87
11. U.S. Department of Education, Office of Special Education (OSEP). Accessed online at: <https://www.ideadata.org/PartBChildCount.asp>
12. *Physician's Desk Reference*, 59<sup>th</sup> ed. Medical Economics, Montvale, NJ 2005
13. McEvoy GK. *AHFS Drug Information 2003*. Am Soc of Health-systems Pharmacists, Bethesda, MD. 2003
14. Grandin, T. *Thinking in Pictures, my life with autism*. Vintage Books, NY 2006.



# References

14. Swallow JN. The dental management of autistic children. Br Dent J. 1969; Feb 4:126(3):128-31.
15. Robinson MD, Milius AC. In Dentistry for the Handicapped Child. St. Louis: CV Mosby Co. 102-120, 1976
16. Tesini D. D-Termined Program: Repetitive Tasking & Familiarization in Dentistry. DVD and CD-Rom available from Specialized Care Co.  
[www.specializedcare.com](http://www.specializedcare.com)



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