

# 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 For the General Practice Resident 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.



# Learning Disabilities Mental Retardation & Down Syndrome

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# LEARNING DISABILITIES



# Learning Disabilities

**“A heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities”**

***National Joint Committee for Learning Disabilities<sup>1</sup>***



# Causes and Risk Factors<sup>2</sup>

- Often idiopathic
- Hereditary trends
- Issues during pregnancy or birth
- Postnatal injuries
- Malnutrition
- Toxic exposures



# Concomitant Conditions

- **Not indicative of low intelligence<sup>3</sup>**
- **May be difficult to achieve at his/her intellectual level**
- **May occur with other conditions:<sup>2</sup>**
  - **Sensory impairment**
  - **Mental retardation**
  - **Emotional disturbances**
  - **Environmental influences**



# Categorization by Information Processing Deficit <sup>4</sup>

- **Input**
- **Integration**
- **Storage**
- **Output**



# **Categorization by Difficulties: Caused by Processing Deficits<sup>4</sup>**

- **Dyslexia**
  - **Most common learning disability**
- **Dysphasia/aphasia**
- **Dyscalculia**
- **Dyspraxia**
- **Auditory processing disorder**



# Diagnosis<sup>5</sup>

- **Generally recognized in early schooling**
- **Identification of problems through testing and observation of performance and social interaction**
- **Often defined by discrepancy between IQ and achievement test scores**
- **Many standardized assessment tools are in use**



# Interventions<sup>2</sup>

- **Mastery of fundamental skills**
- **Increased practice**
- **Intense, highly-structured instruction**
- **Classroom adjustments (seating, testing)**
- **Special equipment**
- **Special education classes and schools**



# Impact of Learning Disabilities

- **Personal**
  - **Fear, shame, guilt, depression**
- **Societal**
  - **Increased use of public assistance<sup>6</sup>**
  - **Youths and adults in detention more likely to have a learning disability<sup>7</sup>**



# Attention-Deficit Hyperactivity Disorder (ADHD)<sup>8,9</sup>

- Not included in formal definition of learning disability
- Caused by chemical imbalance, rather than by structural brain differences
- ADHD and LD may be co-morbid
- When ADHD is treated, LD often resolves



# MENTAL RETARDATION



# Mental Retardation

**“Significantly sub-average general intellectual functioning resulting in or associated with concurrent impairments in adaptive behavior and manifested during the developmental period”**

***Grossman, 1983<sup>10</sup>***



# Etiology <sup>11, 12, 13</sup>

- **Genetics: 8%**
- **Physical: 12%**
- **Other: 80%**
  - **Cultural/familial**
  - **Multifactorial**
  - **Psychosocial**
  - **Diagnosis unknown**
- **Overall prevalence: ~3%**



# Classification (I.Q.)<sup>14</sup>

- **Mild: 55-70 (75%)**
- **Moderate: 40-55 (20%)**
- **Severe: 25-40 (3.5%)**
- **Profound: 0-25 (1.5%)**



# Characteristics<sup>14</sup>

- **Physical**
- **Behavioral**
- **Intellectual**
  - **Visual, auditory discrimination**
  - **Difficulty with abstract cues**
  - **Changes in routine**
  - **Perseveration**



# Presence in Society<sup>14</sup>

- **Less than 2% institutionalized**
- **Community-dwelling: 98%**
  - **Home with family**
  - **Group homes**
- **Schools**
- **Workshops**
- **Increasingly people with intellectual disabilities are living and working in the community with intermittent support**



# DOWN SYNDROME



# Down Syndrome: Background

- **1865: first described by Dr. Langdon Down based on physical findings<sup>15</sup>**
- **1956: Discovery that human DNA has 46 chromosomes**
- **1959: Recognition that the disorder is based on an extra chromosome at the 21<sup>st</sup> group (Trisomy 21)**



# Down Syndrome:

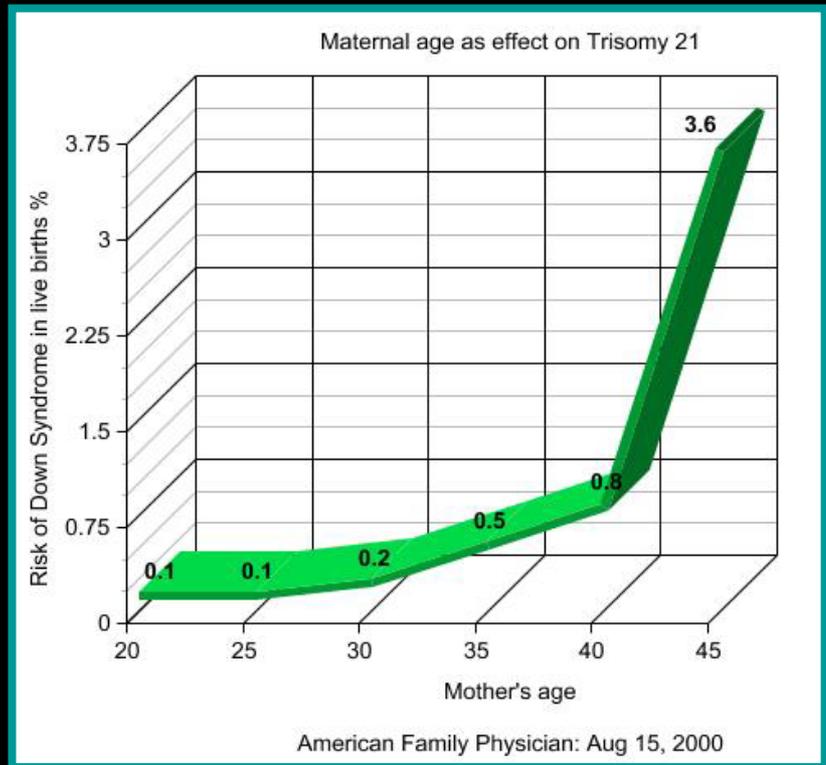
## Etiology<sup>16</sup>

- **Nondisjunction of a 21 chromosome during oogenesis**
- **Nondisjunction of a 21 chromosome during spermatogenesis**



# Incidence related to maternal age<sup>17</sup>

- One in 700-1000 live births
  - maternal age 20: 1 in 2,300
  - maternal age 34-39: 1 in 280
  - maternal age 40-44: 1 in 130
  - maternal age 46: 1 in 65
  - maternal age 54: 1 in 54





# Life expectancy

- **Mean age of death (*CDC, June 2001*):<sup>18</sup>**
  - **Overall: age 49**
  - **Caucasians: age 50**
  - **Blacks: age 25**
  - **Other: age 11**
- **Racial disparity based on socio-economics**



# Physical Findings and Medical Concerns



# Cardiac Concerns<sup>19</sup>

- **Mitral valve prolapse (over 40%)**
  - **Aortic regurgitation higher**
  - **Echocardiogram warranted**
- **Antibiotic coverage for SBE prophylaxis follows standard AHA guidelines<sup>20</sup>**



# Leukemia

- **Incidence as high as fifty times that of general population<sup>21</sup>**
- **Consult with hematologist**
- **Obtain CBC, other test as needed**



# Upper Respiratory Tract Infections<sup>22</sup>

- **Incidence greater than in general population**
- **Related to immunologic deficit**
- **Second leading cause of death in Down syndrome (after cardiac abnormalities)**



# Atlanto-Axial Instability<sup>23</sup>

- Present in up to 20% with Down syndrome
- Avoid neck hyperextension
- No reliable test available
- Caused by ligament laxity



# General Appearance<sup>16</sup>

- **Short stature**
- **Stooped posture**
- **Obesity**
- **Brachycephalic**
- **Thick neck**



# Skin Characteristics<sup>24</sup>

- Often dry, rough
- Easily irritated
- Condition may begin in infancy





# Eye malformations and vision<sup>16, 25</sup>

- **Narrow, almond-shaped**
- **Inward-slanting**
- **Epicanthal folds**
- **Increased risk of cataract formation**
- **Strabismus, nystagmus common**





# Speech and hearing<sup>26</sup>

- Delayed speech, husky voice quality
- low-set ears , often smaller size
- helix often flat or absent
- High incidence of hearing impairment (~75%)





# Mental Retardation<sup>16,22</sup>

- **Mental retardation nearly universal**
- **IQ 20-50 (moderate-severe) most typical**



# Self-Injurious Behaviors (SIBs)<sup>27</sup>

- Frequently occur in Down syndrome
- Greater incidence with severe/profound MR
- May indicate:
  - Frustration at inability to communicate
  - Oral/dental pain
  - Other pain



# Characteristics Dental & Craniofacial



# Midface dysplasia<sup>16, 28</sup>

- flat, broad nasal ridge
- lacking superorbital ridges
- orbital hypotelorism





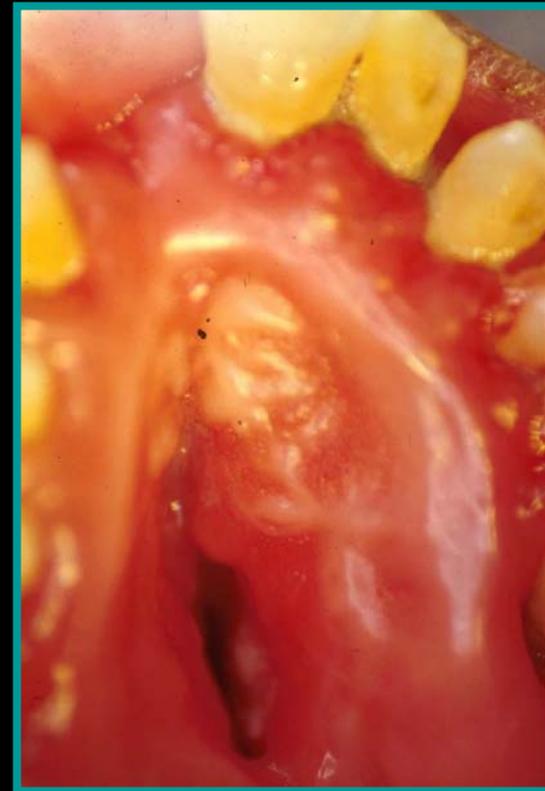
# Craniofacial Characteristics<sup>26</sup>

- **Sinus abnormalities have been reported:**
  - **absent frontal sinuses**
  - **absent/reduced maxillary sinuses**
- **Nasal septum and/or conchal deviation**



# Cleft palate<sup>29</sup>

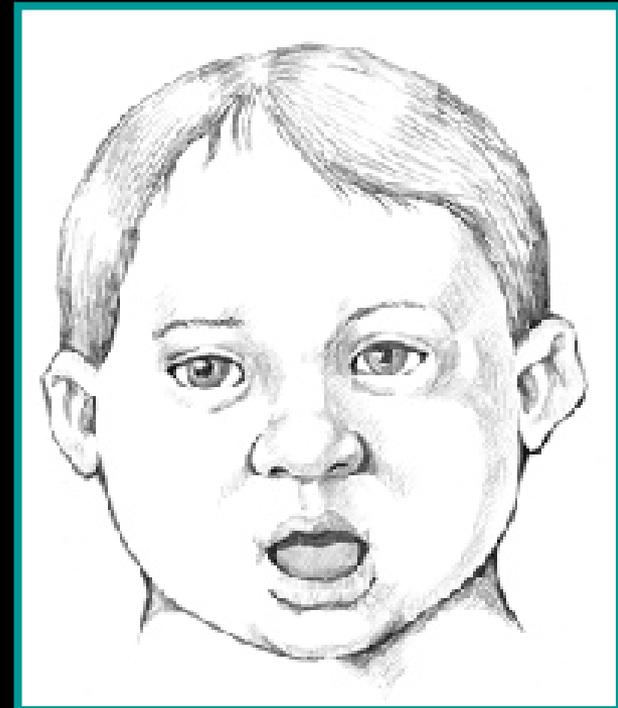
- **Increased incidence of cleft palate**
- **Often repaired in infancy**





# Tongue characteristics

- **Relative macroglossia<sup>30</sup>**
  - small palate
  - decreased arch length
  - decreased arch circumference
- **Fissured tongue<sup>16, 22</sup>**





# Mandibular positioning<sup>16</sup>

- **Mandibular protrusion**
- **Open-mouthed posture**





# Malocclusion<sup>16</sup>

- **Class III (32-70%)**
- **Crossbite (71%)**
- **Open bite (5%)**





# Dental Characteristics<sup>28</sup>

- **Microdontia is common**
  - short crowns, roots
  - taurodontism often reported





# Dental Characteristics<sup>28</sup>

- **Increased incidence of:**
  - **overretained primary teeth**
  - **delayed eruption of permanent teeth**
  - **impacted teeth**



# Dental Characteristics<sup>28</sup>

- **Increased incidence of:**
  - **Missing lateral incisors**
  - **Peg-shaped lateral incisors**
  - **Varied tooth morphology**
  - **Excessive spacing**





# Periodontal Disease

# Dental Caries



# Periodontal Disease

- **Most significant dental disease associated with Down syndrome**
- **Expression of disease differs from that in the general population<sup>31</sup>**



# Periodontal Disease

- Present in over 90% of patients with Down<sup>16</sup>,  
<sup>22</sup> syndrome
- Alveolar bone loss as early as age 6
- Severe, early onset is common
- Unrelated to plaque amount or virulence<sup>31</sup>
  - decreased immune response
  - ligamentous laxity, rapid degeneration



# ANUG<sup>16</sup>

- **Acute Necrotizing Ulcerative Gingivitis**
- **Increased incidence of ANUG**
- **Differs from presentation in general population**
  - **Less painful**
  - **Less malodor**



# Oral Hygiene Concerns<sup>16</sup>

- **Pervasive poor oral hygiene**
- **Findings similar in community or institutions**
- **Similar findings to other persons with MR**
- **Calculus accretions similar to others with MR**
- **Dental findings contribute to poor oral hygiene**



# Approaches to Periodontal Disease

- **Treat early and aggressively**
  - **Frequent scaling/prophylaxis**
  - **Chlorhexidine**
  - **Doxycycline (Periostat ®)<sup>32</sup>**
  - **extraction of overretained primary teeth**
  - **extraction of crowded teeth**
  - **occlusal equilibration**
- **Surgical approaches???**



# Dental Caries

- **Lower caries rate than control groups<sup>28</sup>**
  - **delayed eruption pattern**
  - **tooth spacing**
  - **early tooth loss secondary to periodontal disease**



# Prosthodontic Considerations

- **Tooth mobility**
- **Malocclusions**
- **Oral hygiene**
- **Patient cooperation**
- **Healing ability**



# MANAGEMENT OF THE PATIENT WITH COGNITIVE IMPAIRMENT



# Patient Management

- **Approach varies with degree of cognitive impairment**
- **Individual approach based on patient characteristics and dentist personality**
- **Many techniques similar to those used in pediatric dentistry**
- **Dental assistants play active role in patient stabilization**



# The Caregiver

- **The caregiver is a valuable resource**
  - Past dental experiences
  - Successful behavioral strategies
- **Calming influence during treatment**



# Engaging the Patient

- **Goal is to alleviate fear**
- **Engage patient in the waiting room**
- **Maintain conversation**
  - **Dialogue or monologue**



# Consistency of Care

- **Helps make the patient comfortable**
- **Maintain consistency**
  - **Dental team members**
  - **Operatory**
  - **Appointment day and time**



# Avoid Dental Jargon

## AVOID...

- Scaling/prophylaxis
- Extraction
- Restoration
- Anesthetize
- Explorer
- Handpiece

## USE INSTEAD...

- Cleaning and brushing
- Wiggling out the tooth
- Fixing a hole
- Make the tooth sleepy
- Tooth counter
- Tooth cleaner



# Positive Reinforcement

- **Repeated verbal praise**
  - Patients often eager to please dentist, caregivers
- **Highlight progress**
  - Progress at each step of the procedure
  - Progress since the start of the procedure
  - Progress since last visit
  - Progress since first visit



# Is the Patient Treatable?

- **Patient ability to cooperate may often be predicted by:**
  - **Degree of cognitive impairment**
  - **Past dental experiences**
    - **Factors mitigating and/or worsening behavior**
  - **Patient ability to sit and recline in the dental chair**



# Seating the Patient

- **Allow time to acclimate to the chair**
- **Advise patient in advance of anticipated chair movements**
- **Guide patient into reclined position**
- **Maintain conversation**



# Control of Patient Movement<sup>33</sup>

- **Unexpected movements due to:**
  - **Noise**
  - **Vibration**
  - **Water**
- **Movement hazardous to patient and staff**



# Head Stabilization

- **Head cradled between operator's arm and chest**
- **Use care to avoid compromise of airflow**
- **May be used for most procedures**
- **May be used in combination with other protective stabilization techniques**



# Therapeutic Hold

- **Hands/arms held by caregiver or dental staff**
- **Hold varies based on patient size, strength**
- **Avoid use of excessive pressure**
- **Effective in combination with modified headlock**



# McKesson Mouth Prop

- **Maintains opening, reduces fatigue**
- **Select correct size prop**
- **Loop floss through opening**





# Molt Mouth Prop

- Allows opening of mouth against resistance
- Avoid trapping soft tissues between teeth and prop





# Papoose Wrap

- **Best for young, small patient**
- **Useful for short procedures**
- **Various wrap styles**
- **“Parent as papoose”**



# Sedation

- For patients who do not allow treatment<sup>34,35</sup>
- Anxiolysis is often sufficient
- Conscious sedation
- IV sedation
- General anesthesia



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