



# 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.



# Treatment Modalities/ Treatment Planning for Patients with Special Needs

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# **Treatment Modalities/ Treatment Planning for Patients with Special Needs**

**Over 50 million Americans have some form of disability, with a wide range of conditions and levels of severity.<sup>1,2</sup>**

**Providing dental services to a patient from this segment of the population may require modification of routine or standard behavior management modalities and alteration of treatment protocols to accommodate the individual's impairment.<sup>2</sup>**



# Treatment Modalities/Treatment Planning for Patients with Special Needs

- Every patient, with or without a disability, is an ***individual***.
- What may work for one patient or one practitioner may not work for another.
- If a patient is treated on a different day, by the same clinician with the identical treatment, “it may not work”; *OR* the same treatment by another clinician is delivered on the same day “it may work”.



# Environment

- **An important source of behavior management is a non-threatening environment. Music, visual distractions, scenery, colors, videos, television, etc. all contribute to a positive atmosphere.**
- **Calm music and pleasant scenery may promote a sedate environment. However, loud music and “wild” scenery/video may be effective as a distractive environment.**



# Attitude

- **TLC, empathy, touch, massage, singing are all examples of ways to make the dental visit pleasant and keep the patient calm.**
- **It's not only *what we do to the patient*, but also *how we do it*.<sup>2</sup>**



# Tell-Show-Do

**Must be age appropriate for the patient's development and level of understanding.<sup>2</sup>**

**Some patients show increased cooperation if they are shown instruments, allowed to hold them, etc. Perhaps a mirror and blunted explorer or x-ray film could be sent home with the patient.**



# Psychological Techniques

- **Positive reinforcement**
- **Desensitization: Let patient take mirror, x-ray film, impression tray home**
- **Start visits out slowly, have the patient return frequently**
- **Negative reinforcement should generally not be used<sup>3</sup>**



# Proper Timing

- **Treat the patient at the appropriate time of day according to that individual patient's need.<sup>2</sup>**
- **Most patients do better in the morning, but some may not be “morning people”**



# Food Intake

- **NPO may be best to avoid nausea and vomiting, but some people “get cranky” when they are hungry.<sup>2</sup>**
- **Consider treating certain patients a few hours after mealtime, provided they are not being sedated, in order to prevent hunger but minimize potential for vomiting.**



# Physical Restraint: Medical Immobilization / Protective Stabilization

- **Appropriate restraint is used when needed to protect patient, practitioner, and staff from injury**
- **To reduce untoward movement**
- **To assist in delivery of optimum dental treatment<sup>3,4,5</sup>**



# **Physical restraint: Medical Immobilization / Protective Stabilization**

- **Must follow applicable laws and regulations**
- **Partial or complete immobilization**
- **May be an adjunct to pharmacological restraint**
- **Performed by dentist, staff, guardian**
- **With or without immobilization device**<sup>3</sup>



# Physical Restraint: Medical Immobilization / Protective Stabilization

- Use physical restraint only when other less restrictive methods are insufficient
- Use the least restrictive method
- Gentle stabilization
- Must cause no injury
- Informed consent needed
- Documentation <sup>3,6</sup>



# Methods of Stabilization

- Parent/ caregiver on chair holding patient on lap
- Staff holding patient
- Patient on dental chair with parent/caregiver on lap
- Staff member holding patient's head
- Dentist cradling patient's head under arm
- Papoose board
- Velcro wrist restraints
- Sheet immobilization<sup>5</sup>



# Physical Restraint: Medical Immobilization / Protective Stabilization

**A protocol combining physical immobilization with pharmacological sedation is often utilized depending on the needs of the individual patient and the needed dental treatment.<sup>2</sup>**



# Physical Restraint: Medical Immobilization / Protective Stabilization

- The practitioner must be aware of the needs and desires of the individual patient, parent/guardian, institution, jurisdiction, and his/her own comfort level.
- Proper informed consent must always include an explanation of all treatment alternatives, even those that the practitioner does not perform or provide himself.<sup>3</sup>



# Other Approaches?

**Think and act “outside the box.”**  
**Consider any and all approaches.**



# Reasons for Sedation

- **Nature of treatment**
- **Extent of treatment**
- **Behavioral resistance**
- **Anxiety<sup>3</sup>**



# Reasons for Sedation

- Sedation protocol is modified and varies depending on the patient's behavior.
- Effects are variable. If mild or moderate sedation is ineffective, attempt an IV deep sedation or admit into the hospital O.R.
- Minimal sedation may be sufficient for exam and radiographs. If exam reveals extensive operative or surgical needs, patient may require deeper sedation or O.R.



# Disadvantages of Hospital O.R.

- **Strain on patient and caregivers**
- **Cost**
- **Strain on hospital staff and facility<sup>3</sup>**



# Reasons for Hospital O.R. with G.A.

- **Nature of treatment**
- **Extent of treatment**
- **Medical or anesthetic risk**
- **Difficult airway<sup>3</sup>**



# Causes of Difficult Airway Access

- **Obesity**
- **Maxillary hypoplasia (Apert, Crouzon, Rubenstein-Taybi, Down Syndromes)**
- **Mandibular hypoplasia (Treacher Collins, Goldenhar, De Lange, Robin Syndromes)**
- **Micrognathia**
- **Macroglossia (absolute or relative)**
- **Tumors (hemangioma)**
- **Trauma**



# Down Syndrome

- **Midface hypoplasia**
- **Relative macroglossia**
- **Atlanto-axial instability**



# Pharmacological Techniques

- **Inhalational: nitrous oxide**
- **Enteral: oral, rectal**
- **Parenteral: IM, IV**
- **Outpatient G.A.**
- **O.R./ General Anesthesia**



# Nitrous Oxide

- Patient must cooperate
- Patient must be able to breathe through nose
- Reduces gag reflex (impressions, radiographs)
- Analgesia
- Adjunct to behavioral techniques, local anesthesia, other sedative agents<sup>3</sup>



# Continuum of Depth of Sedation

- **Minimal sedation (Anxiolysis)**
- **Moderate sedation**
- **Deep sedation**
- **General anaesthesia<sup>6</sup>**



# Continuum of Depth of Sedation

**Definition of General Anesthesia  
and levels of sedation approved by  
American Society of Anesthesiologists  
House of Delegates on October 13, 1999  
and amended on October 27, 2004**



# Anxiolysis: Minimal Sedation

**“A minimally depressed level of consciousness, produced by a pharmacological method, that retains the patient’s ability to independently and continuously maintain an airway and respond normally to tactile stimulation and verbal command.**

**Although cognitive function and coordination may be modestly impaired, ventilatory and cardiovascular functions are unaffected.”<sup>6</sup>**



# Moderate Sedation

“A drug-induced depression of consciousness during which patients *respond purposefully to verbal commands*, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.”<sup>6</sup>



# Deep Sedation

**“A drug-induced depression of consciousness during which patients**

***cannot be easily aroused but respond purposefully following repeated or painful stimulation.***

**The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.”<sup>6</sup>**



# General Anesthesia

“A drug-induced loss of consciousness during which *patients are not arousable, even by painful stimulation.*”

The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.”<sup>6</sup>



# Continuum of Sedation

“Because *sedation is a continuum*, it is not always possible to predict how an individual patient will respond. Hence, practitioners intending to produce a given level of sedation should be able to rescue patients whose level of sedation becomes deeper than initially intended.”<sup>6</sup>



# Continuum of Sedation

**“Rescue of a patient from a deeper level of sedation than intended is an intervention by a practitioner proficient in airway management and advanced life support. The qualified practitioner corrects adverse physiologic consequences of the deeper-than-intended level of sedation (such as hypoventilation, hypoxia and hypotension) and returns the patient to the originally intended level of sedation.”<sup>6</sup>**



# Enteral Drugs

- **Benzodiazepines (diazepam, midazolam, lorazepam, triazolam)**
- **Non-benzodiazepine GABA agonists (zolpidem, eszopiclone, zaleplon, zopiclone)**
- **Chloral hydrate**
- **Antihistamines (diphenhydramine, hydroxyzine, promethazine)**
- **Narcotics**
- **Barbiturates<sup>7</sup>**
- **Alcohol (yes, it's a drug)**



# Enteral Drugs

- **Most commonly for cooperative patients who are fearful or anxious<sup>7</sup>**
- **May be useful for patients who resist entering facility as a premedication to other agents**
- **Adjunct to other methods**



# Enteral Drugs

- **At bedtime (HS) night before**
- **Morning of appt. at home**
- **In clinic**
- **Oral (PO) or rectal (PR)**



# Enteral Drugs

- **Easy to administer**
- **No injection**
- **Prolonged and erratic absorption and effect**
- **Unable to titrate**
- **Monitoring requirements<sup>7</sup>**



# Benzodiazepines

- **GABA, the major endogenous CNS inhibitory neurotransmitter, binds to and activates GABA receptors in the brain, causing chloride ion channels to open. The subsequent influx of chloride ions causes a more negative resting potential, making the neuron less responsive to excitatory stimuli.**



# Benzodiazepines

- **Bind to benzodiazepine receptors on GABA<sub>A</sub> complex in the brain.**
- **Enhances chloride ion channel response to GABA**
- **No effect if GABA is not present**



# Benzodiazepines

- Sedation
- Muscle relaxation
- Anxiolysis
- Amnesia
- Anticonvulsant



# Benzodiazepines

- **Wide margin of safety**
- **Reversible**
- **Minimal cardiovascular effects**
- **Most popular drugs for oral sedation (anxiolysis) <sup>7</sup>**



# Benzodiazepines

- **Main differences between formulations are in absorption, bioavailability, onset and duration of action, half-life, elimination.**
- **Pick drug based on route of administration, duration of appointment<sup>7</sup>**



# Chloral Hydrate

- **Sedative/hypnotic**
- **Gastric irritant**
- **Nausea/vomiting**
- **Mixed with antihistamine to mitigate nausea, potentiate sedative effect**
- **Mostly supplanted by benzodiazepines due to more favorable clinical profile<sup>7</sup>**



# Antihistamines

- **Mild sedative-hypnotics**
- **Antiemetic**
- **Minimal cardiovascular or respiratory effects**
- **May be mixed with chloral hydrate or narcotics to mitigate nausea and potentiate sedation**



# Barbiturates

- **Cardiovascular and respiratory depressants**
- **Narrow margin of safety**
- **No longer recommended for PO anxiolysis due to availability of better agents<sup>7</sup>**



# IM Techniques

- **Ketamine (dissociative anesthetic), Benzodiazepines, Narcotics, Anticholinergics**
- **Some use as sole method (consider IV for emergency meds)**
- **Used to obtain IV access when necessary**
- **Useful for extremely unmanageable patients<sup>8</sup>**



# IM Techniques

- **Relatively rapid onset**
- **Relatively reliable absorption**
- **Limited ability to titrate (repeat injection)**
- **Unpredictable results due to empiric dosing<sup>8</sup>**



# IV Techniques

- **Rapid onset**
- **Safest route**
- **Reliable absorption**
- **Titratable**
- **Predictable**
- **Emergency access available<sup>9</sup>**



# IV Techniques

- Propofol, Diazepam, Midazolam, Meperidine, Morphine, Fentanyl, Ketamine, Robinul, NS, D5W
- Naloxone, Flumazenil- reversal agents<sup>9</sup>



# Monitoring

- **Precordial stethoscope, continuous respiratory status**
- **Non-invasive blood pressure measurement (NIBP)**
- **Pulseoximetry**
- **Capnography**
- **ECG<sup>9</sup>**



# Monitoring

- **Practitioner monitoring patient is not performing treatment**
- **Complete time-based anesthesia record**
- **Patient discharge when back to pre-anesthesia level<sup>9</sup>**



# Emergency Prevention

- **Appropriate training and office preparation**
- **Minimize sedation used**
- **Treat in hospital when appropriate**



# Emergency Prevention

- **Inform caregiver of potential problems**
- **Have emergency equipment and drugs readily available**
- **Have other trained individuals available**



# Emergency Equipment

- Oro- and nasopharyngeal airways
- Laryngeal Mask Airways
- Bag-valve mask
- Emergency drugs
- Rapid access to 911 system<sup>9</sup>



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