Changing Family Dynamics and the 4P’s: Psychology, Pharmacology, Physiology, Phamily (and a lot of stress)

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Child Behavior and Parent Management

Defining the Pediatric Patient

- Growth Charts
  - Function of height, weight, BMI and age
  - Recent changes because of development and obesity
    - Specific for secular populations

Easy Definitions

- Premie (preterm): born before 40 weeks after gestation (<37 weeks)
- Neonate (newborn): first 28 days after birth
- Infant: between 1 month and 1 year (alternative 3 years)
- Childhood: includes toddlerhood and preadolescence
  - Toddlerhood: between 1 and 3 years
  - Childhood: between 3 and 10 years
- Adolescence: begins at puberty
  - Ends at maturity between 17-19
  - Never ends in males!

So, What is a Child?

- Sedation and Anesthesia Guidelines
  - AAP/ADA/AAP
    - Under 21 years of age
  - ADA
    - 12 and under
- Nelson’s Pediatrics
  - Infants, children and adolescents
- Pediatric Endocrinology
  - Patients up to maturity or less than 18
- Anesthesiology
  - Physiologically, the 3 year old is more like an adult than an infant
  - Airway anatomy
  - Pharmacokinetics
  - Organ function and formation
- It’s all about who is defining it...
Defining the Pediatric Patient

- **Chronological Age**
  - Time counted from birth

- **Physiological age**
  - A person's age estimated by his or her body's health and probably life expectancy.
  - The age of an individual expressed in terms of the chronologica age of a normal individual showing the same degree of anatomical and physiological development. (about.com)

- **Mental age**
  - An intelligence test score (I.Q.), expressed as the chronological age for which a given level of performance is average or typical.

- **Developmental age**
  - Determined by Freud and Erikson
  - Developmental milestones are a set of functional skills:
    - Gross motor
    - Fine motor
    - Language
    - Cognitive
    - Social

Defining the Pediatric Patient

- **Age of Consent (AKA Sexual Age)**
  - Minimum age at which a person is considered to be legally competent of consenting to sexual acts
  - The European Union calls it the legal age for sexual activities
  - Should not be confused with the age of majority, age of criminal responsibility, the marriageable age, the age at which one can purchase and consume alcoholic beverages, or drive a car (see age of license)

Defining the Pediatric Patient

- **Age of License**
  - The age of license is an age at which one has legal permission from government to do something. (You can fight in a war and kill but you can’t drink)
  - States’ rights
  - Determined by agrarian v. industrial
    - Voting age
    - Drinking age
    - Driving age
    - Working age

Defining the Pediatric Patient

- **Age of Assent**
  - Generally regarded as 7 to 17 years of age
  - Controversial in nature
  - Providing enough age appropriate information to allow a child to assent or have dissent overridden in a case where there is a situation where harm may occur by postponing
  - The term used when a child agrees to be in a study.

Defining the Pediatric Patient

- **Puberty**
  - The condition of being or the period of becoming first capable of reproducing sexually marked by maturing of the genital organs, development of secondary sex characteristics, and in the human and in higher primates by the first occurrence of menstruation in the female (Merriam Webster 2010)
    - Females > males
    - Now 1.5-2 years earlier than in 1980- Danish (2009) and American (2005) studies
    - Possibly related to nutrition, exposure through plastic to hormone like substances, exposure through food to Bovine Growth Hormone (BGH) and other animal growth stimulants
  - Ethnic differences
    - 14% of 7 yo African American females show the beginning signs of 2nd sex characteristics
  - Weight
    - Obese females (>90 BMI) reach puberty younger
    - Obese males (>90BMI) reach puberty later
Defining the Generations

• Lost Generation
  • Fought in WWI

• Greatest Generation (GI Generation)
  • Veterans who fought in WWII

• Silent Generation
  • Born between 1925 and 1945
  • Too young to fight in WWII
  • “Children of the Great Depression”

• Baby Boom Generation
  • 1946-1964
  • Born after WWII marked by increase in birth rates
  • Remodeled society; rejected or redefined social and traditional values
  • Returned to the values later in life
  • Rock and Soul

Defining the Generations

• Generation X
  • 1964-1982
  • MTV Generation
  • Baby Buster or Boom Shadow
  • Decrease in birth rates
  • Introduction of home computers, video games, cable television, the internet and the DotCom Bubble
  • AIDS epidemic
  • Iraq War
  • Highest education levels of any generation
  • Lower overall income - men 12% less than fathers
  • Grunge and hip hop

Defining the Generations

• Generation Y: The Millennials
  • ~1982-1993 (up to 2000)
  • Echo Boomers
    • Children of Baby Boomers
    • Significantly increased birth rate but still not as great as Baby Boomers
  • Generation Me
    • Narcissists; military enrollments decreased during war
    • Entitlement and rejection of social conventions
    • “The Plastic Brain” - the concept that modern youth perceive the great things on they grow up in the suburbs, who contrast anxiety with applying to elite selective colleges, and who multi-task with ease as their helicopter parents hover reassuringly above them.
    • Trophy Kids
      • They get a trophy for everything they do
    • Boomerang Generation/Peter Pan Generation
      • Delay rites of passage into adulthood and move home after college
  • Economic prospects fatter
  • College completion rates decrease especially boys
  • Frequent switching jobs without loyalty or concern for future
  • No brand loyalty
  • Facebook, MySpace, Twitter: media driven
  • Electropop and hiphop / indie Rock

Defining the Pediatric Patient

• Developmental stages
  • Physiological
    • Determined by growth characteristics
  • Developmental
    • Milestones in learning
    • Interpersonal skills
    • Fine motor and gross motor skills
    • Development of self

Defining the Pediatric Patient

• Developmental Stages
  • Early Childhood (Birth to 8)
    • Physiological
      • Between birth and 3
        • Doubles in height
        • Quadruples in weight
    • Rate of growth slows between 5 and 8
  • Developmental
    • Peer relationships
      • Birth to 3: parallel play
      • 5 to 8: friendships develop
    • Gender identity
    • Sense of right and wrong
    • “The Plastic Brain”
    • Malleable and reformative links
Developmental Milestones

12-Month Old Developmental Milestones
- Vocalize/gestures or speaks words to communicate
- Crawls, cruises, or walks
- Responsive, affectionate or aggressive towards others
- Finger feeds, uses cup and spoon independently
- Has precise pincer grasp
- Imitates, shakes, bangs and throws objects
- Waves bye-bye
- Tests permanence (and your nerves)

24-Month Old Developmental Milestones
- Has vocabulary of at least 20 words
- Uses two-word phrases
- Can go up and down steps one step at a time
- Can kick a ball
- Stacks 5-6 blocks
- Imitates adults
- Can follow 2 step commands

3-4 Year Old Developmental Milestones
- Goes up and down stairs without support
- Kicks ball / jumps in place
- Rides tricycle
- Has self-care skills
- Knows name, age, and gender
- Shows early imaginative behavior

5 Year Old Developmental Milestones
- Dresses self without help
- Draws person with head/body/arms/legs
- Recognizes letters of alphabet
- Copies triangle/square
- Plays make believe and dress up
- Plays interactive games with peers
- Follows rules of games

Defining the Pediatric Patient

Developmental Stages
- Middle Childhood (8 to 12 years)
  - Physiologic
    - Growth slow and steady until puberty
  - Developmental
    - Rule based learning

- Adolescence (12-18 years)
  - Physiologically
    - Accelerated growth
    - 2 years rapid followed by 3+ slow, steady
    - Unpredictable
    - Sexual development
  - Cognitive
    - Early
      - Classify and order objects
    - Late
      - Abstract reasoning
    - Hypothesis testing
The Ten Killer Questions

• “Why are you putting my child in a papoose board?”
• Or: “Sedation?!? Doesn’t that kill kids?”
• Or: “What do you mean by my child is willful?”

The Answers

• Alternative means (papoose, sedation, other forms of behavior modification) may be necessary so that your child may receive the necessary care
• Consider the papoose board like a car seat
• Once this treatment is completed we will be able to work with your child...

Parents ask more questions today

• buying your time and expertise
• informed consumer
• lay publications
• internet
• don’t want to be taken by surprise
• want you to think of them as intelligent

Parenting Today

• It’s not the lives they’ve led
Parenting Today

• It’s the books they’ve read!

Preparing the Office

• Staff meetings
• Office sop’s
• Many handouts
• Practice

Be Available for Calls and Emergencies

• You don’t always have to be in the office
• Gen x-ers love e-mail and cell phones

The Changing American Family

American households have never been more diverse, more surprising, more baffling. In this special issue of Science Times [11/27/2013], NATALIE ANGIER takes stock of our changing definition of family.

• Birth rates are down
  • 12% of 1960
  • Children are 25% of the population
  • Children/year: 3.1 in 1970, 1.7 in 2010
• Middle Class families spend $241,080 to age 18 not counting college or grad schools
• Marriage rate declined
  • 1/2 of babies born out of wedlock
  • Less education, greater chance of child out of wedlock
  • Submarining couples decreased
• Divorce rates have dropped
  • 1/2 of first-time marriages
  • 1/3 of middle and upper middle-class
  • Baby boomers 50%

Raising children has rated very near to sex - and to success - as an American fixation. Raising America by Ann Hulbert, 2003

Changes in Practitioner’s Management of Patients

• Since beginning of practice
  • Casamassimo, Wilson & Gross, 2002

<table>
<thead>
<tr>
<th>Management technique</th>
<th>Increased</th>
<th>No change</th>
<th>Decreased</th>
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<td>Parent in operatory</td>
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<tr>
<td>Medical Immobilization</td>
<td>7</td>
<td>46</td>
<td>53</td>
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Pediatric Dentists Believe Parenting Has Changed!

- Limit Setting diminished
- Less likely to use physical discipline
- Parents are unsure of their role as parents
  - CEO v consultant v best friend
- Too busy to spend time with children
- Too self-absorbed/materialistic/outward oriented/concerned with status
- Overinvolved/underinvolved/controlling

The Helicopter Parents

Millennials as Parents!

- Drone parenting
- Group parenting decisions
- Forums
- Every actioninstagrammed
- Less scheduled/free child controlled play
- Democratic families/consensus
- Electronic learning
- Change in standard parenting roles
  - Less likely to be married
  - Stay-at-home dads

Lawnmower Parents

Being Average is OK!

- One Smart Antelope: the Power of being Average
  - David Alan Ketter
  - Traveling through life in the middle of the pack
- In Defense of Being Average
  - Mark Manson
  - http://markmanson.net/being-average
  - Accepting mediocrity when there are comic book superheroes around
  - “Which leads to an important point: that mediocrity, as a goal, sucks. But mediocrity, as a result, is OK.”
- The Benefit of Being Average
  - Time magazine 2015
The average attention span today is 8 seconds

- Microsoft Corporation/Canadian researchers 2015
  - Dropped from 12 seconds in 2000
  - The younger you are the shorter the span
  - Goldfish have a 9 second attention span

Teacups

- Universities have adopted an informal “Dean of Parents”
- Parents are escorted off campus after freshman orientation
- The fragile, never say no, grade inflated child on a college campus is referred to by many Deans and College Presidents as “Teacups” because he/she is so fragile and can’t accept failure
  - Universities have had to hire more counselors
  - Failure is the best teacher

Why?

- Societal changes toward liberalism and breakdown of norms
- Divorce and multiple homes
- Working parents
- Hectic lifestyles
- Loss of extended families
- Increased stress of maintaining lifestyles
- Frequent relocation

Parenting

- Behavioral/Genetics Theory
  - Genes and peers control behavior
  - Parents are unimportant in personality and character development
- Current Theory
  - Complex interplay of interactions and moderating effects of biological, environmental and social factors
    - Eg. Meanness is not psychopathic, it’s behavioral (NYT 2/6/07)
  - Smithsonian Magazine Feb. 2013

Parents Have the Power!

- They can influence:
  - Behavior at home
  - Leisure-time activities
  - Profession
  - Religion
  - Political preference
  - Child friendships (age limited)

How Much Power?

- Moderated by other variables which affect child’s behavior and adjustment
- Eleanor Maccoby, Stanford U., suggests parenting variables account for 20-40% of child outcome
The Power of No (Newsweek, 2004)

- Affluence yields
  - overindulgence
    - Can afford to say yes
    - Give kids advantage
  - Consumerism
  - Less responsibility at home
- Overindulgence yields
  - Self-centered child
  - Difficulty coping with life’s disappointments
  - Sense of entitlement impacts success in workplace and relationships
  - Be vulnerable to anxiety and depression

Parenting Stress

- Inconsistent parenting
- Decreased monitoring and setting consistent limits
- Less proactive/more reactive
- Harsh discipline
- Decreased quality of parent-child relationships
- Less involvement between parent and child

Specific Stressors

- Financial pressures
- Decreased time for parenting
- Daily hassles
- Sleep deprivation
- Increased choices

Too Many Choices!

- Simple processes become more complex
  - What’s the BEST choice v what’s good enough?
  - Analysis paralysis leads to increased stress and shutting down
  - High expectations with resultant failure
- As choices increase
  - Decisions require more effort
  - Mistakes are more likely: perceived or real
- Too many parenting choices of techniques
  - Increases inconsistency, anxiety and failure

Behavioral Scales

Behavior Management in Children and Especially Parents
Behavior Management in Children

• Non-pharmacologic
  • Exploration/Modeling
  • Tell/Show/Do
  • Desensitization
  • Distraction
  • Voice Modulation
  • Behavior Modification
  • Pedi-wrap/papoose/medical immobilization device

• Pharmacologic
  • Used in conjunction with non-pharmacologic
  • Inhalational
    • N₂O/O₂
  • Oral (Enteral) Sedation
  • Benzodiazepine/ Narcotic
  • Sedation (Parenteral)
  • General Anesthesia

Choosing the Behavior Management Technique for Ma and Pa

• Family
  • The “make it or break it” factor
  • Preconceived notions
    • child “needs” sedation
    • “won’t do well”
    • “is anxious”
    • Don’t want sedation, GA, restraints, etc...
  • Their past experience
    • Transferred or projected feelings
  • Requests
    • “no pain”
    • “don’t want my child to remember...”
  • Their needs
    • One visit
    • Multiple visits

Parents Out of the Treatment Room

• Pros
  • No hindrance therefore faster
  • Only one explanation needed
  • Children may behave better without the parent
  • Behavior management is more immediate
  • Child doesn’t perceive harmful situation “save me”

• Cons
  • Two explanations needed means more time
  • Return to parent for procedural change
  • Child lacks parental support
  • What do you do at the MD?

Parents In the Treatment Room

• Pros
  • Supports child
  • Observe procedure and difficulty
  • Decrease office time
  • Immediate informed consent
  • Liability issues

• Cons
  • In the way
  • Over involved
  • Take over
  • More time to explain
Parental Presence During Induction of Anesthesia (PPIA)

- **PPIA**
  - Predicting which child-parent pair will benefit from parental presence during induction of anesthesia: a decision making approach, Kain et al, Anes Analg 102:1, pp81-84, 2006
  - CC+CP= no change
  - CC+AP=AC
  - AC+CP=CC
  - AC+AP= DISASTER!!!

<table>
<thead>
<tr>
<th>Calm Child</th>
<th>Calm Parent</th>
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</thead>
<tbody>
<tr>
<td>Anxious Child</td>
<td>Anxious Parent</td>
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Rules of the Continuum of Behavior Management

- It is not linear
- It is not one way
- It is okay to combine techniques
- On different days, the same child will need different techniques
- Be flexible/ give the child the benefit of the doubt
- Define or modify your definition of success

Communication

- Still possible!

Exploration/Modeling

Tell/Show/Do

- Tell once/show once/do once
  - Set limits on negotiations
  - Always have a mirror

Desensitization

- Expose by working up to the event
- Start on hand where the child can see and move towards mouth
Distraction

• Take attention away from procedure through Ericsonian hypnosis
  • Visual
  • Auditory
  • Engaging activity
  • Storytelling
  • Singing
  • Counting
  • Deep breathing

Distraction

• Computer Tablet Distraction in Children Receiving an Injection
  • 41 children, randomized, received injection
  • A significant difference was found for pain, both self-reported and observed, and observed emotions. Children receiving distraction using a tablet displayed significantly higher amounts of pain and negative emotions. Gender differences in pain and emotions were found with females having a significantly higher amount of pain and negative emotions.

Voice Modulation

• Raising or lowering volume, tone or inflection
• Not well accepted by parents
• May signal displeasure
• Follow by positive reinforcement

Behavior Modification

• Positive reinforcement
• Follows desirable behavior
• Work up to goal
• Positive or negative reinforcement may be used
  • Long term effects are eliminated
• The TOY is KING!
  • Remembered long after the visit is over

Medical Immobilization Device

• Papoose board, Restraining device, soft wrist restraints, head immobilizers
• Mustn’t be tightened such that it causes injury or restricts ventilatory movements
• Must allow free access to monitors
• Office protocol for use (prevents accusations of assault or child abuse)
  • i.e.. 15 min in unsedated child except in emergency
• Consent for use
• May have parent assist in placement of child
• Neck roll to open airway

Pain in Children

• The response to the sensation of pain is often confused for disruptive behaviors
• May be socialized but is real
• Must be recognized as an important entity
• Changes in physiologic parameters
• Difficult to assess in children under 6
  • Use observation
• Self reporting in children over 6
  • Pain scales
  • It is the key to a successful sedation!
Use topical and make it red

• Hides the color of blood
• Numbs mucosa but not much deeper
• Still requires distraction and clenching
• Optimum time 1-3 minutes
• Don’t use too much
  • Risk of methemoglobinemia

Don’t waste your money on expensive anesthetics

• 2% Lidocaine with 1:100000
  • Wide margin of safety
  • Full mouth with two carpules
  • Lasts too long?
  • Amide anesthetic
    • Metabolized in the liver
    • High pKa therefore slower dissociation to free base
    • Infection has lower pH: limits free base

Don’t block children under 8 or use a full carpule

• Porous bone
• Teeth clench
• Move needle along alveolar bone
• Interdental
• Never do a “long buccal”
• 1 hour anesthesia time
• Controlled by volume

Peripheral Sensory Nerve Conduction

Anesthetic solution must cover 3 nodes (~3 mm) to block nerve impulse.
Protein bound section active here blocking Na⁺ channels.

Commonly Used Local Anesthetic Agents - Dose Recommendations from AAP/AAPD

<table>
<thead>
<tr>
<th>Drug</th>
<th>Medical Use</th>
<th>Dental Use</th>
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<tbody>
<tr>
<td>Lidocaine</td>
<td>7.0</td>
<td>4.4</td>
</tr>
<tr>
<td>Mepivacaine</td>
<td>7.0</td>
<td>4.4</td>
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Moore’s Rule of 25

• One carpule/25 lbs. body weight
  • Actually per 4.4 mg/kg~ one carpule/22 lbs.
• Any marketed local anesthetic used in dentistry
• Establishes a conservative dose
• Examples:
  • 50 lbs. 2 carpules
  • 75 lbs. 3 carpules
  • 100 lbs. 4 carpules
• May be too conservative in preschool child
• mg/kg calculation provides greater accuracy


Factors Contributing to Increased Risk of Local Anesthetic Overdose

- Failure to calculate LA dose by weight
- Treating multiple quadrants at one appointment
- Failure to use LA with vasopressor
- LA administered in all quadrants at one time
- Concomitant use of sedation, especially opioids
- LA administered as standard volume per injection
- Selecting a high-concentration solution

Local Anesthetic Volume Administered

“For children under 10 years of age, it is rarely necessary to administer more than one-half cartridge (20 mg), even for mandibular blocks.”

Astra Pharmaceuticals Package Insert, 1997

Infiltration Technique

- Short needle
- Smaller amount
- Diffuses over a larger relative area
- Less mylenization

Anesthesia Techniques in Children

Influence of pH

- Most LAs are weak bases
  - $pK_a$, 7.5-9.5
- Only the base form can diffuse rapidly into nerve
- A high $pK_a$ means slower dissociation to free base
- Clinical result in onset of anesthesia?
  - Tissue acidity lowers pH locally
  - Limits formation of free base
  - Leads to ionic entrapment in extracellular space

Buffering Local Anesthetics

Problems

- Pain from the pH incompatibility of local anesthetic and vasopressor with local tissue pH
  - LA: pH 5-9
  - Vasopressor: pH 3.5
- Tissue injury
- Latent uptake until pH “normalizes”
  - At acidic pH, LA exists in non lipid soluble ionized form therefore unavailable to cross to nerve
- Infection lowers tissue pH
Buffering Local Anesthetics

Benefits

- Increases amount of lipid soluble active non ionized form
  - From pH 3.5 to buffered 7.4 there is a 6000 fold increase in lipid soluble form
- Patient comfort
- More rapid onset
- Decreased injury to tissue
- CO₂ release from HCl interaction with NaHCO₃ may potentiate action of LA and have its own anesthetic effect

Buffering Local Anesthesia

Armamentarium

- 8.4% NaHCO₃ available as 4.2g/50ml H₂O
- Tuberculin Syringe
- Alcohol wipes
- L.A. carpule: 1.7ml with epi 1:100000 or 1:200000
- Lasts about 1 week

And the Complications...

What About Kovanaze?

- Tetracaine HCl and Oxymetazoline HCl
  - Ester L.A. + imidazoline alpha adrenergic
  - 6mg T + 0.1 mg O/spritz in premixed syringe with 5 doses
  - pH 6.0
  - “regional anesthesia for restorative procedures performed in teeth Nos. 4-13.”
  - Nasal administered pulp analgetic for maxillary teeth
  - Children who weigh 40 kg or more (though reps say 3yo+)
- Methemoglobinemia

Choosing the Child for Sedation

- My reply:
  - “If I only had a magic wand...”
  - “Treatment is like changing a tire on a car moving at 30 mph...”
  - “In a healthy child, general anesthesia is as safe if not safer...”
  - “If you don’t want your child to cry at all...”
  - “If your pediatrician said your child needed ear tubes...”

Choosing the Child for Sedation

- Severity of treatment/disease
  - Extent
  - Complexity
  - Time and number of visits required
  - Cost
    - Multiple sedations v. single GA
    - Time off from work
    - Time out of school
  - Is “monitored neglect” with “preventive intervention” an option?
    - Fluoride varnishes
    - Glass ionomers/ART
Choosing the Child for Sedation

- Medical status
  - ASA 1 or 2
  - Airway patency
  - Age: what is too young to sedate?
- Age
  - Cognitive v. physical
  - Delay?

The Ideal Sedative

- Reduces fear and anxiety in children
- Decreases inhibitory behavior
- Provides amnesia
- Maintains cardiovascular and respiratory tone
- Does not cause drowsiness or sleep

The Ideal Sedative

- Decrease patient treatment time by decreasing behavior management time
- Increase treatment efficiency
- Low cost to office
- Low cost to family
- Easily reversed agent/ for duration of treatment

DOES NOT EXIST

Inhalation

- Safe
- Effective
- Quickly and easily reversible
Nitrous Oxide/Oxygen Analgesia

- Provides anxiolysis
- Reduces gagging
- Works on opioid receptors and reduces pain
- Provides amnesia
- Provides distraction
- Mask blocks sight lines
- Covers smells
- Prolongs treatment times
- Potentiates the effects of other sedatives
- Improves behavior over sequential visits
- Decrease adverse incidents

“A mixture of 93% nitrous oxide and 7% oxygen is inhaled until the third stage of anesthesia is attained (the pupils of the eyes turn up and become fixed) in about one minute. When too much nitrous oxide is given the patient usually becomes cyanotic and bridging may occur, which may be overcome quickly by the administration of a small portion of oxygen.”

John Brauer, Dentistry for Children, 1947

Nitrous Oxide/Oxygen Analgesia

- Acceptable to parents
- Inhalation analgesia/anxiolytic/CNS depressant
- 40:60-50:50 concentration
- 2-4 min onset/5 min recovery
- Diffusion hypoxia is theoretical
- Equipment costs:
  - Initial setup
  - Maintenance and monitoring
- No electronic or mechanical monitors
- Allows decrease in L.A.
- 40%-4mg MSO
- Allows decrease in L.A.
- MAC>100 (the hypoxia kills them)

Open vs. closed system changes concentration
oropharyngeal [N2O]=15% when machine is set at 45%
Supplemental oxygen reduces risk of desaturation during sedation
May also decrease the occurrence of hypercarbia
May mask hypoventilation because of hypersaturation by O2

Carried in the blood as a dissolved free gas
- Does not bond to hemoglobin
- Partial pressure equilibrium quickly reached because does not dissolve well

Contraindications
- Otitis media or sinusitis
- Diffuses into cavity at a rate 37 X > N2 leaves
- Child may have difficulty and may be fidgety
- Severe emotional or drug related dependencies
- Sickle cell disease
- May be argued that 50% O2 decreases chance of crisis during stressful dental procedures
- First trimester pregnancy
- Chronic Obstructive Pulmonary Disease
- Treatment with Bleomycin Sulfate
- Autistic Children with MTHFR disorder (<1%)
Nitrous Oxide/Oxygen Analgesia

◆ And now the bad
  ◆ N₂O pollution and potential occupational exposure risks
  ◆ May alter cell metabolism and neuroapoptosis
  ◆ Long term exposure related to Cyanocobalin (Vit B12) and Folate (Vit B9) deficiency (also found in Autistic children)
  ◆ Weak agent requires additional behavior management techniques
  ◆ N/V and disorientation at high concentrations
  ◆ 100% tissue saturation occurs by 30 min
  ◆ Must decrease concentration especially if rubber dam in place
  ◆ Frequent adjustments
  ◆ Food in stomach

Nitrous Oxide/Oxygen Analgesia

◆ Safe and effective use
  ◆ Combined flow at 6L/m
  ◆ Scavenger set to 45L/m
  ◆ Reduce concentration of gases away from the patient
  ◆ Reservoir bag full but not stretched
  ◆ Use a smaller 2L bag
  ◆ 100% O₂ to start
  ◆ Gradually over 2-3 minutes increase to desired concentration of N₂O
  ◆ Allow to settle for 5 minutes

Nitrous Oxide/Oxygen Analgesia

◆ Signs of satisfactory level
  ◆ Parasthesia and peripheral tingling
  ◆ Sensation of warmth
  ◆ Eyes open or slightly drowsy
  ◆ Auditory changes
  ◆ Spatial disorientation
  ◆ Floating
  ◆ Euphoria
  ◆ ADD STOP HERE

◆ Don’t forget to talk to your patients

Use a rubber dam for all restorations

◆ Nothing worse than fighting lips, tongue, cheek in a gagging child
  ◆ 2 hole slit stretched over quadrant
  ◆ 2A, 8A, 00, 14A
  ◆ Wedges
  ◆ Or use isolation device
    ◆ Mr. Thirsty
    ◆ Isolite
    ◆ Optralite

Use a mouth prop

◆ The always useful mouth pillow!
◆ Helps the child relax
◆ Prevents unwanted “Code Red”
◆ Passive placement, not forced

Don’t extend for prevention

◆ G.V. Black had it all wrong!
◆ Small bonded restorations that preserve tooth structure
◆ Seal all vulnerable grooves
◆ Composite v. GI v RMGI
◆ SPEED!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Tips to Make It Through a Day

• Always give options but...
  • Never ask a question to which no is the unintended answer
• If a situation escalates to the point where you are getting uncomfortable...
  • Walk away for a few moments
• Always go home feeling good about what you’ve done and whom you’ve treated