Pediatric Pain Management in Perianesthesia Nursing

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Presenting Illness

C: Chief complaint
  - What was child told?
I: Immunizations, Isolation?
A: Allergies (parents?)
M: Medications
P: Past medical history, parent’s impression
E: Events surrounding the illness or injury
D: Diet, diapers (already dehydrated?)
S: Symptoms

Additional Pre-op History

- Medications? Supplements? ADD? ADHD?
- Motion Sickness? N&V?
- CBC – anemia?
- HCG – > 11 yrs?
- Social Habits – adolescents
- Obesity? Snore? Sleep apnea?
- Loose teeth?
- Guardianship?

Physiologic Differences

- Proportionate Vital signs (cards?)
- More Soft tissue in Airway (tonsils, adenoids)
  - Infants are obligate nose breathers!
- Greater Surface area – evaporation, heat loss
  - Hypothermia will slow metabolism (med clearance)
- Higher metabolic rate – increased caloric/fluid requirements, cardiac output, & gas exchange
  - Less cardiac reserve -
- Fluid shifts- more free water-
  - Cannot concentrate urine
  - Take Vital signs while quiet!

Physiologic Differences: Airway

- Medications? Supplements? ADD? ADHD?
- Motion Sickness? N&V?
- CBC – anemia?
- HCG – > 11 yrs?
- Social Habits – adolescents
- Obesity? Snore? Sleep apnea?
- Loose teeth?
- Guardianship?

Post Intubation Inflammation

1-6% pediatric cases

- Traumatic/repeated intubation
- Bucking the tube
- Changing position after intubation
- Tight fitting/cuffed ETT

Humidified oxygen
Racemic epinephrine
(watch rebound)
Overnight observation?
Steroids?

In first hour after extubation - resolves 24 hours
- Max edema 4 hours –
Bronchospasm

- Risk for asthmatics, URI, and ex-premies with BPD
- Note with anaphylaxis, mucous plug, and aspiration
- Usually in 3 minutes

- Humidified Oxygen
- Albuterol nebulizer
- Lidocaine (relax)
- Epinephrine
- & Steroids

Laryngospasm

Causes:
- URI (2x more)
- Younger children
- Airway surgery (T&A)
- Environmental tobacco smoke exposure

- 9% vs. 1%
- (LMA = ETT risk)

Treatment:
- Jaw thrust or forward displacement of mandible
- 100% O2 - humidified
- CPAP 5-10 mmH20

Complete Airway Obstruction

- Retractions, tracheal tug but no sound
- Positive pressure will not “break” spasm
- Succinylcholine IV (IM) and Atropine IV
- Intubation

Be Prepared!!

The Ill Child

Weak cry, no eye contact, no tracking
Irritability, difficult to console, lethargy

1st - Increased Cardiac Output – HR & RR
2nd - Decreased Cardiac Output – peripheral vasoconstriction, often no cyanosis
“pedal pulses”

*Hypotension is a late sign of decompensation*

The Ill Child

- Always look at oxygenation first!
  - Pulse ox on toes (socks?)
- Hypotension? 20 cc/kg NS or LR
  - Repeat until improved
  - x 5-15 min (as fast as IV can take) (juice box = 120 ml)
- Vascular access difficult?
  - ETT – only LEAN
  - 5 min to PIV or CL – then IO
    - IO - every med, blood, even drips,
    - Flush 1" and with every med
    - Extravasation – monitor
The Neonate
Thermoregulation – cold stress – surface area
Warms the table, blankets, radiant warmer, humidified O₂
Pulmonary vasoconstriction, lactic acidosis
Hypoglycemia
Beware of topical meds
Dcrs GFR – liver enzymes
Hypoxemia – 1st hyperpnea then apnea
  – Twice the O₂ needs/10! than adults!
  – Weak cough – increased risk for aspiration
  – Hypotension less likely from hypovolemia
  * (10 ml/kg- slower)

What is Wrong?
Hypoxia? Hypercarbia?
Hypotension? Hypoglycemia?
Increased ICP? Septicemia?
Embolism? Alcohol withdrawal?
Pain? Bladder distention?

Resuscitation
• 95 Adverse sedation events in Children
  80% Respiratory event =1st
  ▪ desaturation, apnea, laryngospasm
  • ~ 51 died
  ▪ 9 permanent neuro injury
  ▪ 21 prolonged hospitalization, no lasting injury
  ▪ 14 no harm

(Cote et al, 2000)

Resuscitation
Non-Hospital vs In-hospital
Cardiac arrests 53% vs 14%
Adverse 57% vs 2.3%
Death/neuro injury 92% vs 37%
Non-hospital were older/healthier children
Resuscitation #1 determinant of outcome (Cote, 2000)

Resuscitation
• Successful outcome related to use of Pulse ox!
• Failure to respond
• Inadequate pre-sedation medical evaluation
• Lack of independent observer for sedation
• KNOW medication calculations, recovery guidelines, advanced airway management,
• Appropriate size ETT, airway, mask.

(Cote, 2000)

Just because children are small…. their PAIN can be BIG!
**The Experience of Pain**

- Before birth, nervous system can process pain
- Infants lack central inhibitory influence – see generalized full body response
- All children have a robust inflammatory response
- Memory of pain results in a lowered pain tolerance
- May deny pain to avoid shot or consequences

**Iatrogenic Pain: the Unintentional Pediatric Trauma**

- Dramatic increase in Procedural pain:
  - IV’s, injections, blood draws, catheters, radiology
  - Normal Child = 18-24 injections before age 6!
- Average # procedures in ICU – 89
- Medical floor – 27

**38 children – After PICU**

29% remembered pain
21% remembered being scared
16% had difficulty sleeping

*These children were treated with the age-appropriate sedatives and analgesics!

PICU: 25% have long-lasting sequelae:
- Anxiety, behavior disturbances, hallucinations, fear, aggression, distrust, self concept

Children’s Critical Illness Impact Scale, Rennick, 2008

? Correlation with Post-Traumatic Stress disorder

**Pediatric Pain Management: A Grade Report**

- 237 children 10 days – 17 yr old
- 92 Chronic condition; 107 to surgery
- Pain scale rated q 2 hrs (color analog)
  - 69 (30%) rated pain >3 at 1st interval
  - 39 (22%) had >6 at subsequent interval
- 50% parents reported child’s pain >3 at one or more intervals

Ellis (2002)

**ALL WERE UNDERMEDICATED!**

**ALL WERE IN PAIN PART or ALL DAY!**

**Why?**

Assessments were done correctly
Medication ordered 68% time

- 157 had pain med ordered
- 70 received none
- 30% received 1 dose
- 6% received 2 doses
No correlation between the assessment and the administration of analgesia!
• Extremity fractures  0-15 yrs
• 123 hospitals, 933 patients
• 59% documented pain assessment
• No documented infant pain assessment
• 50% in mod-severe pain
  offered analgesia
• 6-15 yrs offered opioid
twice as much as the
0-1 and 2-5 yr
Probst (2005) Loyola – chart review

Pain Assessment
Reported    Observational

Thermometer, Numeric
 & Visual Analog

FACES SCALE

Oucher, Poker, Body Outline

Observational Pain
Assessment:
For the infant, toddler, intubated, sedated
cognitively impaired, or dev. delayed
• Hunger, fatigue, anger, & worry can
  change the VS, face, posture
• Experience of pain is relative
to interpretation
• Parent report may reflect their
  own anxiety.
Reliability

FACEs, Numeric, Visual Analog not validated PACU
must be cognitively aware/communicative
FACEs their feelings vs. pain < 7 years?
r-FLACC – good for non verbal, not specific, descriptors
NCCPC-PV great for cog. impaired (takes 10 min!)
MAPS-r 0-3 yrs – allows for VS changes, sedate/pain
PPP – more descriptors, parents like, RN – “fussy”

Pain Assessment: r-FLACC

- Validated 2 mo-7 yr
- Observe 1-5 min.

Pain Assessment: NCCPC-PV

Non-Communicating Children’s Pain Checklist – Post operative Version
- 27 behavior points – 6 categories
- Freq./10 min. 0-3 pts
- Interrater reliability & validity
- Assessment at home?
- Good for Cerebral palsy-
  eye size, tongue thrust,
  stiffness or spasticity

CRIES: Neonatal Infant Postoperative Pain Scale

(32 weeks) 0–6 mos

Pain Assessment: CHEOPS

Children’s Hospital of Eastern Ontario Pain Scale
- Validated/reliable in 1-5 yr – Scores 4-13
- 28 items in 6 categories (cry, facial, verbal, torso, touch, legs)
- Must be standing or vertical
- Allows for child restraint
  Will you medicate better is score is higher? Pain = 22?

Comfort Scale: Sedation & Pain!

- Pain assessed for critically ill, using behavioral or physiologic parameters associated with pain
- For unconscious, ventilated, young children
  1. Alertness
  2. Calmness/agitation
  3. Respiratory response
  4. Physical movement
  5. BP
  6. HR
  7. Muscle tone
  8. Facial tension
Score 1-5 (8-40) with 17-26 as adequate sedation and pain control

Inter-rater reliability – Bear (2006) 29 RN’s – 55 case studies
Multidimensional Assessment
Pain Scale

Can the Parent report their child’s pain?

• YES! 150 hosp. children, visual analog (Ellis 2002)
  – 89% parent–child correlation >6 yr
  – 67% correlation staff–child
  – 65% correlation staff–parent
  – Child’s pain = parental frustration, anxiety, & anger

• NO! 3459 kids 7-14 yr numeric (Kroner-Herwig 2009)
  – Children’s self-report + Parents on somatic pain, anxiety
  – Only correlated with headache pain
  – Pain rated higher intensity, duration, frequency by kids

Pain Management at Home

• Teach: Assessment Side effects
  Timing Multiple medications
  How to Report to HCP

Information to parents about medicating for pain could be greatly improved! *in writing!

Medicating Children: High Risk

• Small body, little changes
• Weight based – often liquid
• Decimals!! Calculate every time!
• Adverse effects greater – Nephrons! Liver!
• Different caretakers – shaky history
• Watch that fluid! Use a pump!
• 21 years of accountability!

Obese Children

17% of U.S. children 2-19 years ~2009
Needs larger volume loading dose of lipophilic drugs (fentanyl) + has longer elimination ½ life (+ dehydrate quicker!)
  – If > 40 kg, for single dose, use wt based/kg
    (unless exceeds adult dose)
  – If continuous infusions – use mcg/hr like an adult (not wt based) Need a Policy!

Newborn Pain Management

• Diminished ventilation if hypoxic & hypercarbic
• Paradoxical apnea or periodic breathing
• C/R monitor until 3 mos

• Magnified in premature infants
• CR monitor until 6 mos for former premies
• SUCROSE?
Methods of Delivery:
Local Anesthetics

EMLA – (lidocaine/prilocaine)
- Effective for LP, IV, venipuncture, allergy tests, laceration repair, central lines
- Thick layer, 60-120 min
- Add occlusive and heat to speed uptake

ELA-max – OTC, massage, 30 min
*neonatal extremity vasospasm

Local Anesthetics

- Amethocaine gel in newborns, 5 min with occlusive drsg, venipuncture
- Iontophoresis – “Numby stuff”
  - electrical field drives lidocaine/epi in ionic form
  - 10-25 min – variable current “tingling”
  - grounding for <5 yrs - Child packaging
- Vapo-coolant Spray – Ethyl chloride “Paineze”
  - Short duration, cool, for injection, venipuncture
  - Some skin reactions, quick and cheap

Local Anesthetics

- J-tip – jet injection, needleless
  buffered lidocaine or insulin
- Injectable lidocaine – painful
  Buffer with bicarbonate (neutralizes acidic pH)
  Warm
  Small gauge needle (decrease tissue distention)
  *careful of small-extremity vasospasm!

Pharmacologic Agents:
Acetaminophen

- Most common analgesic for mild-mod pain
  - Not an anti-inflammatory
  - Elixir - taste
  - Rectal – suppository sizes, slow, variable absorption
  - IV > 2 yrs (< 2 yrs?) $
  - Stable only 6 hours once opened
  Liver toxicity – FDA 2-12 yrs

Pharmacologic Agents:
NSAIDS

- Less GI, renal, urinary pre-conditions than adults
- Aspirin avoided for influenza/varicella (Reyes)
- Ibuprofen – widely used, taste
  - Not with history of asthma, GI bleed, renal dx
  - Not for < 6 months or 7 kg
  - Risk of bleeding?
- Ketorolac – IV
  - Single, IV/IM < 17 yrs
  - Multiple? (Moffet 2006)

Acetaminophen/ Ibuprofen

<table>
<thead>
<tr>
<th></th>
<th>Acetaminophen</th>
<th>Ibuprofen</th>
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<tr>
<td>Infant gt</td>
<td>80 mg/dropper</td>
<td>50 mg –</td>
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<tr>
<td>Liquid</td>
<td>160 mg/5 ml</td>
<td>1.25 ml dropper</td>
</tr>
<tr>
<td>Chewable</td>
<td>10 or 160 mg tab</td>
<td>50 &amp; 100 mg tab</td>
</tr>
<tr>
<td>Adult</td>
<td>325 or 650 mg tab</td>
<td>Adult 200 mg tab</td>
</tr>
</tbody>
</table>
Pharmacologic Agents:

NSAIDS

- Choline magnesium? Trilisate—no platelet effect—non steroidal anti-inflam. Not with ASA or NSAID allergy—only in liquid PO
  (Johnson, 2012)
- COX inhibitors—“caution”—arthritis? Hypersensitivity issues

Opioids

Fentanyl – PO, R, lollipop, intranasal, IV – 30 sec onset
rapid IV infusion can lead to chest wall rigidity
best for hemodynamically unstable
faster ½ life, less N, less allergy for kids, OK for neonates
resp depression last longer than analgesia effect,
no transdermal if < 2 yrs, 70x more potent
continuous infusion has 21 hour ½ life (accumulates)

Morphine – PO, R, transdermal, IM, IV- 10 min onset
excellent analgesia, wide margin of safety
Histamine release- bronchospasm, NOT with asthma,
Resp depression, urinary retention, N & V, myoclonus
2x the ½ life in NB-6 mos

Hydromorphone – PO, R, IV
faster onset, 5-7 x more potent than morphine
less N & V
(S2 kids PICU: Reno, 2012)

Codeine – PO, IM, SQ, IV (mild/mod only)
With Acetaminophen (max?), Not a Schedule 2
Ok in <3 yr?
33% children “poor metabolizers” to morphine
- NO effect
  (Williams, 2002)
“Ultrarapid metabolizers” – resp depression & death
“lowest effective dose, short term” or Do not use!

Methadone – PO, IM, SQ, IV
excellent analgesia, long ½ life
slow and variable clearance
titrinate to avoid delay and over-sedation

Nalbuphine – SQ, IM, IV
Less resp. depression, mod-severe pain
Best for morphine pruritis, supplement opioids
synthetic, not a controlled substance

Alpha-2 Agonists:

Dexmedetomidine- IV slowly! (HTN)
- Sedation – cont infusion,
- Rebound HTN if suddenly halted (infiltrate?)
- tested 4 mos – 18 yrs (x1)

Clonidine – mg
- SubL tablets, patch, epidural
- Patches – large dose – Do not cut!
- Withdrawal? ED? But not tested

Intramuscular/Subcutaneous Injections

“This little owie will take away your big owie”
IM/Subq Injections (cont)

Children are willing to endure a great deal of pain to avoid a shot!

Pain at that time and for days.

Hypovolemic child gets peripheral vasoconstriction and IM is not absorbed, then resuscitation results in unpredictable bolus.

IV Opioids - Bolus

- Intermittent IV bolus of morphine, hydromorphone, and fentanyl
- For moderate to severe pain
- 1-2 hour bolus – never > 4 hours (fast metabolism)
- Less consistent pain relief – high/low
- Time delay
- Monitoring O2 sat, RR, HR
- The Intermittent bolus can supplement a continuous infusion.

Continuous Infusion (Basal Rate)

- C/R Monitoring necessary
- “No catch up” high/low
  - Infuses during sleep
  - Not flexible for procedural pain
- Morphine, Hydromorphone, Fentanyl
  - can see hypoxemia in postop children
  - alternate with NSAIDS or acetaminophen
  - Side effect: N/V, pruritus, & myoclonic “shakes”

THE PCA – in a child?

- Very small doses given at small intervals
- Can be concurrent with basal rate
- Flexible for procedures
- Pre-op education
  6-7 yr + = very effective
  4-6 yr need parent help
  < 4 years?  (AMA)

PCA by Proxy: Nurse Controlled Anesthesia (NCA)

- Healthy post operative patients are “narcotic naïve.” They do not recognize pain until levels are too high  (Douglas 2005).
- Nurses will recognize pain
- Nurse identifies potential pain: ambulation, dressing change, turning
- Administration without time delay

PCA by Proxy: Can Parents Push the PCA?

- 30 children  6 mo-2 yr
  Cleft palate repairs - several surgeries
- Fentanyl PCA + basal –
- 87% parents liked participating – Control!
- Fentanyl use higher – more N/V
- D/c’d O2 sat alarms/assessments!
  “Nursing supervision?” (Choi 2007)
Parent-Controlled PCA?
- 1011 Cancer pts
- 12% PCA Proxy(parent) ; 88% Standard PCA
- Parents were opioid knowledgeable
  - 70 events (RR, 02 sat, hallucination, seizure, LOC)
- Ideal if non-verbal, delayed, or terminal.
- “Give children the control/psychological benefit of PCA whenever possible” (Douglas 2005)

PCA with Naloxone?
- 46 children, 11-17 yrs
- Naloxone vs placebo 0.25 micro/kg/hr
- Pruritus 20% vs 77%
- Nausea 35% vs 70%
- No difference in pain report at rest or coughing (Maxwell 2005) (Concurred Miller 2011)

Does Pain Control Matter?
- No increase in patient/family satisfaction (Habich, 2011)
- “Nurses must ask each patient & family their perception of pain management” (Habich, 2011)
- Use standardized pain assessment tools
  - (the same one!)
- Hospitals could not maintain change >6-8 months (Frank & Bruce, 2009)

When is it Hypoxia? Pain? Emergence Delirium? or “I want my Mommy”?

Emergence Delirium
- First reported in 1960’s
- Reported with every inhalation agent
- 5% adults but 25-80% in children (Sury, 2007)
- Dissociated state of consciousness
  - inconstant, irritable, uncompromising, thrash, cry, mean, or be incoherent
  - some show paranoia
- Self-limited 5-15 min. (10-45 min)
- “2 nurses to hold the child”
- May not recognize parents/familiar objects
- Parents state it is “unusual” – deep sleep
Consequences of ED

- Can open surgical wound
- Cause airway inflammation with ETT
- Injure self from thrashing
- Pull tubes or drains
- Need more staff
- Injure staff
- Lengthen time in PACU
- Worry parents

Pediatric Anesthesia
Emergence Delirium (PAED)
Rating Scale

- 5 psychomotor items
  - Decreased ability to make eye contact (caregiver)
  - Decreased awareness of surroundings (focus)
  - Less purposeful action (disorganized thinking)
  - Restlessness*
  - Inconsolable crying*

PAED = consistency in research  
Sikich & Lerman (2004)

ED Caused by Pain?

- ED with MRI, CT, and non-painful eye exams
- 260 children, type of surgery and methods of pain med did not alter risk of ED
- IV fentanyl or caudal block – same % ED

Control pain!

Is it the Drug?

- Benzodiazepines can cause paradoxical excitement in adults & children. ED?
  - When given, controls anxiety but not ED
  - Midazolam, Atropine, Droperidol linked to ED
  - Ketamine – sedation + analgesia
    - Carries hallucinations, oral secretions
    - Catecholamine/histamine release - Not with asthma
  - ED as active or as drug is waning    Rebound?
  - Children excited on midazolam, can calm with ketamine!

- Barbiturates – pentobarbital & secobarbital cause paradoxical excitement (thiopental does not)
  - All 3 linked with ED  
  - Stepwise decrease of sevoflurane?  
    - no change in ED
  - Sevoflurane and/or isoflurane 2x as likely to have EA as any other anesthetic
  - Sevoflurane had shorter PACU stay
  - Desflurane has highest incidence of ED
    - and most irritating to respiratory system?

The Drug?

- ED Propofol 3.7%  vs  Sevoflurane 23%
- ED Sevoflurane 40% vs. Halothane 10%
  - more ED in preschool boys 3-5 yrs
- Obese children need less propofol (lipid based)
- Propofol rapidly metabolized, emerges in pain!
- Propofol should not be given if egg/soy allergies
  
(Sikich, 2004)
Premedications?

“Agitated children emerge agitated”  “Happy thoughts”
Midazolam?
Reduced “negative behaviors”  Same 9% ED
More ED in older pre-medicated children  (Cole, 2000)
Reduced ED but slowed awakening  (Mason 2009)
Delayed but still ED?  (Johnson, 2012)
Fentanyl IV before d/c anesthetic?  MRI pts
ED in 12% Fentanyl vs, 56% Control  (Mason, 2009)
Dexmedetomidine?
ED 26% vs 68% Control
did not prolong extubation/discharge time  (Shukry 2005)

Is it Neuro?

CNS irritation “seizure-like” with sevoflurane (adult EEG) & isothane, different from halothane
Desoflurane does not cause pre-convulsant EEG and it has more ED than sevoflurane
Ketamine decreases seizure threshold? Irritable Flumazenil can cause seizures
Misperceptions/paranoia like the aging brain?
• Pad all side rails!

Is it Developmental?

• Adults do not have as much ED
• Pain mimics ED – grimace, cry, agitation, groan
• Do they wake like this at home?
• Crying, thrashing, fighting, uncooperative
• Development:
  – Infants – stranger anxiety, trust
  – Toddlers – separation, routine, magical thinking
  – School Age – fear disfigurement, loss of control
  – Adolescents – appearance, lack of privacy, holding it together

10 FACTORS of ED

• Young age 4.8 vs 5.9 y/o
• No previous surgery
• Poor adaptability
• Ophthalmology
• *Otorhinolaryngology
• *Sevoflurane
• *Isoflurane
• Analgesics
• *Short time to awaken 14 vs 26 min
• #1 preoperative anxiety

(Voepel-Lewis 2004)

Multi-factorial

• 522 kids 3-7 yrs
• elective outpatient
• Emergence agitation in PACU
• 18% (96) had EA
  – mean 14 min, (45 min max)
• 52% required pharmacologic intervention
  (PACU stay 16 min> than non-EA)

Multi-factorial

Rapid emergence without adequate pain control
Young
No previous surgery
Large blood loss during surgery
Postoperative pain
Use of sevoflurane or isoflurane or both
Use of analgesics
#1 preoperative anxiety
Yale Preoperative Anxiety Scale – modified (YPAS-m)

- 1-4 Activities / Vocalizes/ Expresses Emotion/State of Arousal/Interacts
- playful, explores
- seeks objects
- happy smiling
- look around, follow
- initiates interactions

- clings, avoids toys
- escape, push away
- distressed, uncontrolled
- shun, turn away
- weep/high pitched cry

(Sikich 2004)

Treatment
is the same for ED and pain!

AIRWAY, BREATHING, OXYGENATION
- transitional objects
- calm environment
- blow by O2
- jaw thrust
- Semi-Fowler’s
- O2 Sat on toe
- No weight on chest
- BP – prepare, leg?
- Treat pain
- Remove ETT

Chemical restraints

Chemical Treatment

50% of children spontaneously resolve in 20 min
- Fentanyl IV for severe agitation after T&A or after desflurane (risk of emesis)
- Intranasal fentanyl effective for ear tubes (no IV)
- Nalbuphine (Nubain) with ibuprofen calms T&A but reverses analgesic fentanyl or morphine
- Flumazenil reverses benzodiazepines – caution if seizure history/meds (worked in 17 min)

Lasting effects

Prolonged maladaptive behaviors
- Temper tantrums, bedwetting, separation anxiety, nighttime crying, general anxiety in 50% of those who had had ED
- Retrospective 791 children – preop anxiety score
- For every 10 points on preop YPAS anxiety score, noted a 10% increase in ED and 12% in subsequent maladaptive behaviors.

(Kain, 2006)

“I Want My Mommy….”

(Or Dad.. Home…familiar faces)

Preparation of the Child

- What is told? When?
- How? By whom?
- Involve the child
- Developmental!

- Written material is not effective
- Procedural and sensory information given “cold, wet, sticky, beeps and bells”
**Prepare for the pain?**
- Pre-school age and older want information
- ? Medical play?
- “Burrito, Comfort Hold”
- Coping skills (deep breathe)
- Control – simple choices
- Teach to point, describe
- Care for basic needs –
  - hunger, thirst, toilet
  - sleep, anxiety
- Calm environment

**What works?**
- Interactive: Guided imagery (Magic island), IPAD, bubbles, spinning toys, pinwheel, controlled breathing, interactive story, hold the gauze, unwrap the bandaid, Clowns?
- Passive: Audio visual, virtual reality, music, relaxation (massage), read a story

**What works?**
- “offer a variety of options”
- IV insertions – child life
- Reported found distraction helpful - equal %
  - Active was best for older children
  - Passive was best for younger or more anxious children because cannot handle the requirements of participation
- * Passive required more IV sticks (Koller 2012)

**ADVANCE program**
- Anxiety-reduction Distraction
- Video modeling Adding Parents
- No excessive reassurance Coach
- Expose/Shape (graded, personal)
  - Walco 2008

**Preparation of the Parent**
- RIGHT to know!
- Anticipatory guidance – procedure/process and expected course
- 2 most important
  1. Talk to surgeon
  2. When can they see their child?
- Complications - Emergence
- Pain and pain relief

**Family Centered Care –YES!**
- CHOP PACU visitation in 30 min. (2004-7)
  - Increased 44% - 90%
- Family is support, reassurance, comfort
  - provide education and active involvement
    - decreased need for restraint
    - decreased recovery time
    - identification of pain - communication
    - increased parent and child satisfaction
  - (Kamerling 2008)
Family Centered Care – No!
This PACU is an ICU
Safety concerns – faint, decompensate, add stress
Waiting room for others? Sibling supervision?
Viewing complications
In the way of machines – workload - chairs
Privacy concerns – other children recovering
Delay in PACU discharge
Staff resistance* (#1) Escort??

Parental Presence - Induction
- Reduces separation anxiety
- Less need for pre-medication
- Increased satisfaction and public relations –
  - 97% felt useful!
  - Premedication offered NO benefit.
  - 1 parent to OR – 74% mom, 26% dad (50% more stressed)
  - Small Italian study only 39 children 2-14 yrs (Messeri, 2004)
- Some parents are so stressed, they add additional anxiety!
  Must PREPARE!

Parental Presence- Induction
- Psychological effects of difficult induction or seeing anesthetized child- Loss of consciousness
  - VIDEO vs booklet (Romino, 2005)
- Highest level of anxiety - preschool age 1-4.
- Child most stressed had parent most stressed. (Kain, 2006)
- Can we pick the parent who is suited for this? No!
- Parent can be coached to help and support. (Kain, 2006)

Transportation and Ancillary Services(lab, Xray, IV team)
- Flexible!!
- Bubble-certified
- Steering wheel?
- ID tag to toys/friends
- Explanations
- Parent safety/siblings

Advocate for prompt, compassionate & competent care of children!

Questions?
Resources

• Vital Sign Cards – Designed by Linda Federer
• PNKAS – Pediatric Nurses’ Knowledge and Attitudes Survey Regarding Pain, Manworren 1999.
• “Pain assessment in the patient unable to self-report” (July 2011) American Society for Pain Management in Nursing.
• Yale Preoperative Anxiety Scale Modified YPAS-m
• Emergence Delirium Nursing Care Plan Table 1 – cited in Hudek, K. Emergence delirium: A nursing perspective, (March 2009), AORN.
• Institute for Family-Centered Care Supporting Family Presence: Key Questions to ask.

Vital Sign Cards – Laminate

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Pediatric Anesthesia Emergence Delirium Rating Scale PAED

(Sikich, N. & Lerman, J., 2004)

Comfort Scale
(Cincinnati Children’s Hospital

Pediatric Pain Profile

Ideal for cognitively impaired, non verbal, and children with learning disabilities.
form@ppprofile.org.uk

Non Communicating Children’s Pain Checklist Post op Version
References (cont)