Don’t have enough staff for Pain Control?
Funny, how there is always enough to restrain a child…

Stefan J. Friedrichsdorf, MD, FAAP
Medical Director, Department of Pain Medicine, Palliative Care & Integrative Medicine
Children’s Hospitals and Clinics of Minnesota, Minneapolis/St. Paul, MN
Associate Professor of Pediatrics, University of Minnesota Medical School

stefan.friedrichsdorf@childrensMN.org Twitter: @NoNeedlessPain

Learning Objectives

• Identify myths and misconceptions around needle pain prevention ["attitude"]
• Appreciate high incidence and importance of preventing needle pain ["knowledge"]
• Evaluate the four “non-negotiable” components of needle pain management and design implementation plan for your own clinical environment ["skill"]

What are children most afraid of when coming to see a doctor?

5-year old Marius: Procedural Pain Management


Don't have enough staff for pediatric pain control...?

Funny, how there is always enough staff to restrain a child.

Needle Pain: A Call for Action

- Needle procedures (incl. vaccine injections) performed in childhood are a substantial source of distress
  - By age 2: 14-20 vaccine injections in US
  - Children get behind in vaccination schedule

- Needle fear was the primary reason for immunization non-compliance for 7% and 8% of parents and children, respectively

Procedural Pain: A Call for Action

- It is estimated that up to 25% of adults have a fear of needles (with most fears developing in childhood). Guidelines recommend management of procedure-related pain in children and adolescents. Teljesi TS, Hofvind S, Taddio A. Needle phobia: a neglected diagnosis. J Paediatr Child Health 2006;42(Suppl 1):S1-29.


- Preprocedural anxiety
- Hypersensitivity
- Needle fears
- Avoidance of health care (including nonadherence with vaccination schedules)

Procedural pain: A Call for Action


What do we need to do?

“Hey, it is not rocket surgery”

Joey Tribbiani, Friends
Pain outcomes in a US children’s hospital: a prospective cross-sectional survey

In past 24 hrs, what was cause of worst pain?

- **40% Needle poke**
- **34% Trauma/injury/other medical**
- **10% Surgery**
- **8% Procedure**
- **4% Acute illness/infection**
- **3% Treatment for known disease**

**Friedrichsdorf SJ, Postier AC, Eull D, Foster L, Weidner C, Campbell F.** Hospital Pediatrics 2015. 5(1):18-26

---

**Children’s COMFORT PROMISE**

We will do everything possible to prevent and treat pain.

http://vimeo.com/106286508

---

**Essential Components of Needle Pain Prevention**

**“Non-Negotiable”**

- Topical Anesthesia
- 0-12 months: Sucrose
- Positioning
- Distraction (Integrative “non-pharmacological” therapies)

**Develop Plan B (or deferral process)**

- Child life, psychology
- Nitrous gas sedation
- Consider moderate-deep sedation, if excellent analgesia cannot be achieved
- other approaches

---

**4 steps to make needles less painful**

1. Numb the skin
2. Sugar water or breastfeeding for babies
3. Comfort positioning
4. Distraction

Watch video at childrensMN.org/comfortpromise.
“Non-negotiable” Components of Needle Pain Prevention in Children

1. Numbing

Topical Local Anesthetics

- To reduce pain at time of injection, encourage parents to use topical anesthetics during vaccination of children (grade A recommendation, based on level I evidence).

  Topical anesthetics considered safe for children of all ages. However, administration of excessive doses and/or prolonged application times can lead to serious adverse effects, including irregular heartbeat, seizures and difficulty breathing.


- insufficient evidence for or against use of skin-cooling techniques (vapocoolants, ice, cool/cold packs) to reduce pain at time of injection

Success of venipuncture or venous cannulation in children

- 388 children (255 with EMLA, 133 without).
- 86% percent of in the EMLA group
- 76.7 % in the no EMLA group
EMLA and Neonates


Application of Cream

- Consider Cellophane (transparent film dressing [e.g. Tegaderm] might hurt at time of removal)

Needle pokes without the pain?

J-Tip in the Emergency Room (CBS 4 Morning News)
J-Tip (Lidocaine)

- J-tip: single-use, disposable, carbon-dioxide-powered, needle-less lidocaine injector

“Non-negotiable” Components of Needle Pain Prevention in Children

2. Sucrose

- Reduces pain (PIPP, VAS) and cry during painful procedure, such as venipuncture
- Role of endogenous opioids - naloxone blunts effect
  - Effective dose (24%): 0.05 - 0.5 mL (= 0.012 - 0.12 g)
  - Administration 2 minutes prior to mild - moderately painful procedure
  - Duration ~ 4 min

Breastfeeding


"Non-negotiable" Components of Needle Pain Prevention in Children

3. Positioning

http://vimeo.com/106286508

Pediatric Analgesia in 1985 “Papoose Boards”

4 Sizes to Fit All Ages

Not optimal...
Positioning


- When feasible, offer choice to child (parent's lap?)

- Parents not “partners in crime”

Comfort positions for needle procedures

**Babies (0-12 months)**
- Held by parent
- Swaddled or skin to skin
- Pacifier with sugar water or breastfeeding
- Distraction: favorite toy, blanket or music

**Toddlers and preschoolers (1-5 years)**
- Held by parent, sitting upright is best
- Distraction: bubbles, books, toys or music

**School age (6-12 years)**
- Held by parents or close by, upright is best
- Distraction: interactive toys, books or electronics
- Child may choose to watch or lay down

**Teens (13-18 years)**
- Parents available
- Sitting upright is best
- Distraction: interactive toys, books or electronics
- Teen may choose to watch or lay down

Swaddling, facilitated tucking, kangaroo care

We will do everything possible to prevent and treat pain.

“Non-negotiable” Components of Needle Pain Prevention in Children
With quote from our phlebotomist

http://vimeo.com/106286508

Integrative Therapies for Needle Procedures


- Strong evidence that distraction and hypnosis effective in reducing pain and distress that children and adolescents experience during needle procedures
- Promising but limited/no evidence for preparation and information or both, combined CBT, parent coaching plus distraction, suggestion, or virtual reality

Parent coaching: Certain types of parental behaviors (e.g., nonprocedural talk, suggestions on how to cope, humor) have been related to decreases in children’s distress and pain, whereas others (e.g., reassurance, apologies) have been related to increases in children’s distress and pain. Taddio A, Chambers CT, Halperin SA, et al. Inadequate pain management during childhood immunizations: the need for improvement. Clin Ther 2009;31(Suppl 2):S152-67.

Integrative Therapies for Needle Procedures

**Distraction**

- Reduction of fear and anxiety
- Determine if child wishes to watch or be distracted
- Young children: books, bubbles and pinwheels
- Coaching roles for parents
- Older children: video games and biofeedback
Do you remember Marius...

How about a Plan B?

LET Anesthesia

- Sitting upright
- Distraction
- Topical Anesthesia

- 3mL LET-gel: Lidocaine 4%-Epinephrine 0.18% - Tetracaine 0.5%


If adequate procedural analgesia not feasible with the “4 Non-Negotiables” alone, refer patient to:

(1) Child Life (should’t have been involved by now!)
(2) Needle Phobia: psychology (CBT)

(2) Mild sedation: Nitrous gas

or

(3) Moderate/deep sedation (e.g. ketamine, propofol)

Note:
A sedative alone (such as a benzodiazepine) can never be a substitute for procedural analgesia.
IV Access Under Nitrous Gas

22 months-old, Lidocaine 4% cream in place, needed IV for radiologic procedure, history of challenging IV access in the past

Thanks to Patricia D. Scherrer MD
Children’s Hospitals and Clinics of Minnesota

http://www.caringforkids.cps.ca/uploads/handout_images/3p_babies_to_1yr_e.pdf

Treatment protocol for painful procedures is expected standard of care in 21st century:

Non-negotiable:
- positioning, topical anesthesia, integrative therapies, sucrose
- plus/minus sedation

Conclusions Needle Pain Prevention
Just say stop!

http://pediatric-pain.ca/its-doesnt-have-to-hurt