Needle Pain

Stress Reduction Techniques

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Outline

• What is needle pain?
• Why should we manage it?
• What does the evidence say?
• WHO recommendations
• How do we implement recommendations?
• Key points to remember
• Resources
Needle Pain and fear

- Intense fear, pain and/or distress associated with needles
  - immunisations, venepuncture for blood tests, IV cannulation, IM injections, SC injections
- Psychological response
- Physical response – Stress!!!!!
- Needle pain is primary source of anxiety for caregivers of children receiving injections (Taddio, 2015)
- Not limited to babies and children…adults feel pain too!
- Fear can intensify pain
Why the big fuss?

• Early childhood immunisations
  - vital for public health
• But painful/distressing for infants, children their families and health care providers
• Health care providers find performing needle procedures in fearful children challenging
• Relief of pain/distress is a basic human right
• Potential long term effects of unmanaged needle pain
  - needle fear/phobia (approx. 20% adult population, Wright 2009)
  - non-adherence to immunisation schedule
  - vaccine hesitancy (influenza)
  - avoidance of healthcare
Evidence

• Professor Anna Taddio
  - University of Toronto
  - Sick Kids Toronto (Pharmacist)

• Dr Christine Chambers
  - Dalhousie University
  - Centre for Paediatric Pain Research

• Denise Harrison
  - University of Ottawa
  - CHEO Research Institute

• World Health Organisation (WHO)
  - Endorsed guideline developed by Professor Taddio in a bid to increase vaccination rates and reduce spread of diseases globally
WHO Recommendations

General Measures (all ages)

• Neutral language
  - One VOICE

• Positioning
  - Comfort Positioning

• No aspiration during IM injection

• Most painful vaccine last
WHO Recommendations

Age Specific Measures

• Infants and Young Children
  - the caregiver should be present
  - <3 years held by caregiver
  - >3 years seated on caregiver’s lap
  - breastfeeding commenced before and continued throughout vaccine administration
  - distraction

• Adolescents
  - non-procedural talk

• Adults
  - distraction
  - breathing exercises
WHO Recommendations

Pharmacological Measures

• Not recommended globally
• Topical anaesthetic creams
  - AnGel, EMLA, LMX
• Sucrose
Implementation

• Neutral language – “One Voice”
  - teaches health care providers how to create a less-threatening environment for children undergoing medical procedures
  - online PowerPoint, handouts, posters and ID badge cards

• Comfort Positioning
  - Minimises child’s movement during needle procedures
  - adaptable for variety of settings
  - immobilises extremity
  - offers secure, comforting hugging hold for child
  - comfort through close contact with caregiver
  - positive assistance, not negative restraining
  - sitting position promotes sense of control
  - fewer staff required to complete the procedure
  - Comfort Kids at RCH
Get Comfy
with comfort positions

**Bear Hug**
- Best for small children who need distraction and prefer not to watch procedure
- Allow the child's cuddle parent or staff and have a nurse "hold"

**Swaddle**
- Best for infants and young children
- Provide "Swaddle Sack" if child is in an IPOD
- Encourage parent to remain in eye sight of child

**Side Sitting**
- Great for older children who may want to watch while being secure
- Use when child can't swaddle parent or staff

**Back to Chest**
- Safe and comforting position with child's feet secure in parent's legs
- Great for older children who need independence, but need to be held

**Back to Chest: Port Access**
- Child remains secure and easily distracted
- Use when child can't sit still but wants to remain sitting up

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**Positioning for Comfort**

**Control is Key to Cooperation**

Positions can minimize the child’s sense of control and cooperation during procedures. Combining the appropriate position with a comforting hold by a parent is always preferred.

1. **Towel Position**
   - Use a towel to support the child's back and neck.
   - Use for procedures such as venipuncture.

2. **Side Sitting**
   - Hold the child in a side-lying position.
   - Use for procedures such as bladder catheterization.

3. **Back to Chest**
   - Hold the child in a sitting position with their back to you.
   - Use for procedures such as venipuncture.

4. **Back to Chest: Port Access**
   - Hold the child in a sitting position with their back to you, facing the nurse.
   - Use for procedures such as venous access.

**How to Help Children Cooperate During Procedures**

- Talk in a calm, positive voice.
- Provide distraction, such as a toy or a book.
- Reassure the child that they will be okay.
- Make sure the child is as comfortable as possible.

**One Voice**

- One person should be heard during the procedure.
- Use a calm, reassuring voice.
- Provide comfort and reassurance to the child.
- Make sure the child feels safe and secure.

**Conclusion**

- It is important to always be patient and calm with children during procedures.
- Remember to always communicate with the child and their parents.

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**Monash Children's Hospital**

changing health care for good
• Breastfeeding
  - has been shown to reduce crying time and pain scores in babies who are breastfed during immunisations (Harrison, 2015)
  - non-nutritive sucking (sucrose)
• Breathing exercises
  - focusing on breathing fully and deeply
  - moves the patient out of their sympathetic nervous system (fight or flight) and into their parasympathetic nervous system (relaxation and calm)
• Distraction & non-procedural talk
  - reduces fear, anxiety and pain
  - aim to take the mind off the painful procedure, onto something more pleasurable
  - emphasize coping skills rather than information
Distraction ideas

• BUZZY
• Phone / iPad - look at photos, play game
• books
• Talk- School/ footy/ Spiderman T-Shirt...
• Sing a song
• TLC Distraction box- bubbles, noisy toys
BUZZY is a vibrating device which incorporates a cold pack. Combined effects of vibration and cold interrupt the pain sensation of a needle stick, reducing pain perceived.

BUZZY can be used prior to, during and after painful procedures:

- Insertion of IV cannula
- Port access
- Venepuncture
- Finger pricks for blood samples
- SC or IM injection
How does BUZZY work?

BUZZY needs to be placed “between the pain and the brain” to be effective.

Using the body’s own nervous system, the gate control theory invokes the concept that the final common pathway for sharp pain to the brain can be shut out by the nerves that transmit cold and vibration senses = stimulating cold receptors can dull needle pain.
Virtual Reality (VR)
Topical anaesthetic creams (TAC)

- Produce anaesthesia by inhibition of Na+ channels in sensory neurons
- Reduction in self reported pain scores when TAC used for immunisation (Shah et al 2009)
  - 30-90 mins recommended length of time prior to needle procedure

- EMLA – Lignocaine + Prilocaine
- AnGel - Amethocaine
- LMX – Lignocaine
TAC Barriers

• Time
  - Some caregivers don’t want to wait 30-90 mins for topical anaesthetic cream to work
  - “Coolsense” may be an alternative, although evidence is limited for its effectiveness

• Staffing
  - Lack of DIV 1 nurses in pathology clinics at MCH
  - DIV 2 nurses not able to apply topical anaesthetic creams or administer sucrose

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Nitrous Oxide

- Not recommended in WHO guideline
  - but widely used in Australia
- Odourless, colourless anaesthetic gas
- Quick onset and offset
  - 3 to 5 minutes
- Sedation, amnesia, analgesia, anxiolysis
  - excellent for quick needle procedures
- Can be used with or without a pre-meditation
- Most effective when used in conjunction with other comfort measures
Sucrose

• Analgesic and calming effect
• Babies up to 18 months of age
• Mechanism of action not known but thought to be by the release of endogenous opioids

• Pharmacy prepared 24% sucrose
• Tootsweet – Natus Medical

• Nurse initiated at MCH & RCH
Key points

• Significant impact on public health
• Prevention is better than cure!
  - make first experience positive
• Implement WHO guidelines
• Measures used must be age appropriate
• Our responsibility as health care providers to minimise needle pain
• Multiple resources available and accessible
Thank you!

If you would like a list of resources and references please contact me

rebecca.finnegan@monashhealth.org
Resources

One Voice
- www.onevoice4kids.com

Guidelines
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3001531/

Comfort Positioning
- https://www.childrensmercy.org/Patients_and_Families/Support_and_Services/Child_Life/Comfort_Positions/

Denise Harrison “Be Sweet to Babies”
- https://www.thepainhubuottawa.com/deniseharrison

Christine Chambers “It Doesn’t Have to Hurt”
- https://www.youtube.com/watch?v=ge6RY7L2vVo
- https://www.youtube.com/watch?v=KgBwVSYqfps

Stefan Freidrichsdorf “Children’s Comfort Promise”
- https://www.childrensmn.org/services/care-specialties-departments/pain-program/childrens-comfort-promise/