Minimising Childhood Immunisation Pain using a cold-numbing device (Coolsense®)

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The RCH Immunisation Service

• Funding through partnerships with the Vic. Dept of Health Services - Immunisation section

• Three core services
  • Drop-in centre
  • Telephone advice line
  • Weekly outpatient clinic

• Inpatient Immunisations
Overall service activity

32,020 vaccines administered in 2014-2016 compared to 28,685 in 2012-2014
Background

• Most children dislike needles and are quite anxious about them

• Some develop a considerable fear (needle phobia)

• About 10% of adults have needle phobia\(^1\)
  • onset of needle phobia is prior to age 10 in 70%

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A Child’s early experiences can determine whether medical help is sought in the future\(^2\)

Distress with immunisation can also lead to non-adherence with immunisation schedules\(^3\)

Important to reduce pain and distress when immunising

Making immunisation a positive experience

• Help prevent vicarious conditioning

• Children can be ‘led’ or ‘instructed’ to be fearful of needle procedures

• Negative experiences portrayed by family, friends and the media
  • dental visits
  • immunisations
  • blood tests

4. Smalley A. Needle phobia. Pediatric Nursing 1999;11(2)17-20
Standard care/Distraction Techniques

Bubbles

Toys

Buzzy®
Coolsense®
What’s so cool about Coolsense®?

• Pain numbing device used for injection sites.
• Operating temperature is -2 to -6 degrees
• Only takes 5-10 seconds to work
• Can be used multiple times
• Chemical free
• No waiting time for topical analgesia to work
• Cost effective
• Reduced sensation of pain
• Gives children some control
Evidence

- Prospective observational audit of 100 children and adolescents (6-18 years)$^5$
- Used for Intravenous cannulation
- Audit demonstrated effective skin analgesia. 94% pts rated pain $\leq 3$ (using NRS)
- RCH Clinical guideline developed


RCH Immunisation Service and Coolsense®

- RCH Immunisation Service began using device in May 2017
- Used for ages 3.5 yrs – 18 yrs
- Widely accepted and simple to use
- Continual monitoring of effectiveness and safety in all age-groups
- Pilot study commenced late May 2017
Minimising Immunisation Pain – Pilot Study

Trial / Pilot Objectives:

1. Determine feasibility for larger RCT
2. Provide data to inform sample size for RCT
3. Measure patient compliance
4. Measure parents perceptions
Minimising Immunisation Pain – Pilot Study cont.

Study Design/Methods:

• Sequential Randomisation into four groups: 10 children per group = 40 total:

  1. **Standard care** – distraction using bubbles
  2. **Buzzy® (no wings)** and standard care
  3. **Buzzy® (with wings)** and standard care
  4. **Coolsense®** and standard care
Minimising Immunisation Pain – Pilot Study cont.

- Inclusion Criteria:
  - All children aged 3.5 to 6 years of age inclusive
  - Presenting for a **single** immunisation

- Exclusion Criteria:
  - Confirmed needle phobia
  - Child with Haemophilia or bleeding disorder
  - Eczema/skin damage at injection site
  - Child with development/behavioural disorder
Other Considerations

• Cost effectiveness
• Storage of devices
• Education and training of staff
• Reduce admissions to DMU and need for sedation
• Better patient experience and outcomes
Conclusion

• Nurses need to be aware of procedural anxiety and attempt to decrease this through better pain control.

• Coolsense® is simple to use, enjoyed by most children and adolescents and can help to make immunisation a positive experience.
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QUESTIONS?