

The Children's Haematology and Oncology Centre (CHOC) is based in Christchurch Hospital, and is one of the two paediatric oncology centres in New Zealand and sees approximately 60 new patients each year.

PROCEDURAL PREPARATION

Across Child Health, children experience a number of painful procedures including the placement of intravenous (IV) needles. This can be frightening and anxiety provoking for children¹. It is well documented that children who are exposed to poorly managed painful healthcare procedures are more likely to demonstrate increased pain perception and increased pain behaviours and medical fear later in life. Trauma and distress in childhood can have an effect on the emotional development of that child, thus affecting how they react to distress in the future². Therefore it is vitally important that children are optimally prepared for painful procedures.

Procedural preparation in Child Health is a combination approach including using the right words to reflect on the necessity of the procedure, engaging the caregiver, utilising play and distraction and appropriate analgesia or sedation¹.

ANAESTHETIC CREAMS

Until recently anaesthetic creams have been the "go to treatment" to manage topical pain associated with many procedures. However topical anaesthetic creams have their own complications including side effects like rashes, welts or vascular constriction. The time delay for the anaesthetic cream to become effective can provoke further anxiety for children as they have more time to anticipate what is about to happen to them.

For many children the most distressing aspect of the procedure is the removal of the film dressing used to hold the cream in place. Additionally, the delay is not always clinically appropriate; children may be very ill requiring fluids or medication intravenously so the cream may only be applied for a short period of time. This can lead to ineffective numbing of the skin resulting in a painful experience for the child.

COOLSENSE

The CoolSense pain numbing applicator is a device originally developed for use with cosmetic procedures. CoolSense works almost immediately upon application to cool and numb the site of injection and is chemical free. The 10 second application time and the simplicity in using the applicator were seen as positive attributes to improving the experience of children undergoing needle insertion. It is simple, allergen free and immediate.

The product gained our attention via a Child Health Australasia (CHA) newsletter where we were informed The Royal Children's Hospital Melbourne Medical Imaging team have successfully performed over 5000 cannulations using the device with overwhelming positive feedback from patients who reported radically reduced sensations of pain with IV insertion³.

PARENT SURVEY

The Children's Haematology and Oncology Centre have been trialling the CoolSense device for IV cannulation, blood collection (venepuncture), accessing Implantable ports (central venous access devices) and for intramuscular (IM) and subcutaneous (SC) injections.

For a successful outcome we ensured that the introduction of the CoolSense device was in conjunction with a structured education package for all new users.

An eight question Survey Monkey was designed to capture the parent/child experiences with the CoolSense product, its effectiveness and if it was preferred over topical anaesthetic creams. The survey ran from 30th May 2016 to the 18th July 2016 (49 days) returning an 80% response rate (n=31) with children who are currently receiving treatment. The survey was a mixture of Likert style, yes/no and open questions. Respondents enter their survey answers via a tablet device.

The overall results from the evaluation survey demonstrated that the CoolSense device provided a better experience for CHOC patients and families by reducing pain associated with treatment.

The majority of the feedback indicated that using the CoolSense was quicker and more convenient for the parents/caregivers. 87% of respondents answered that they would recommend CoolSense to other parents.



“

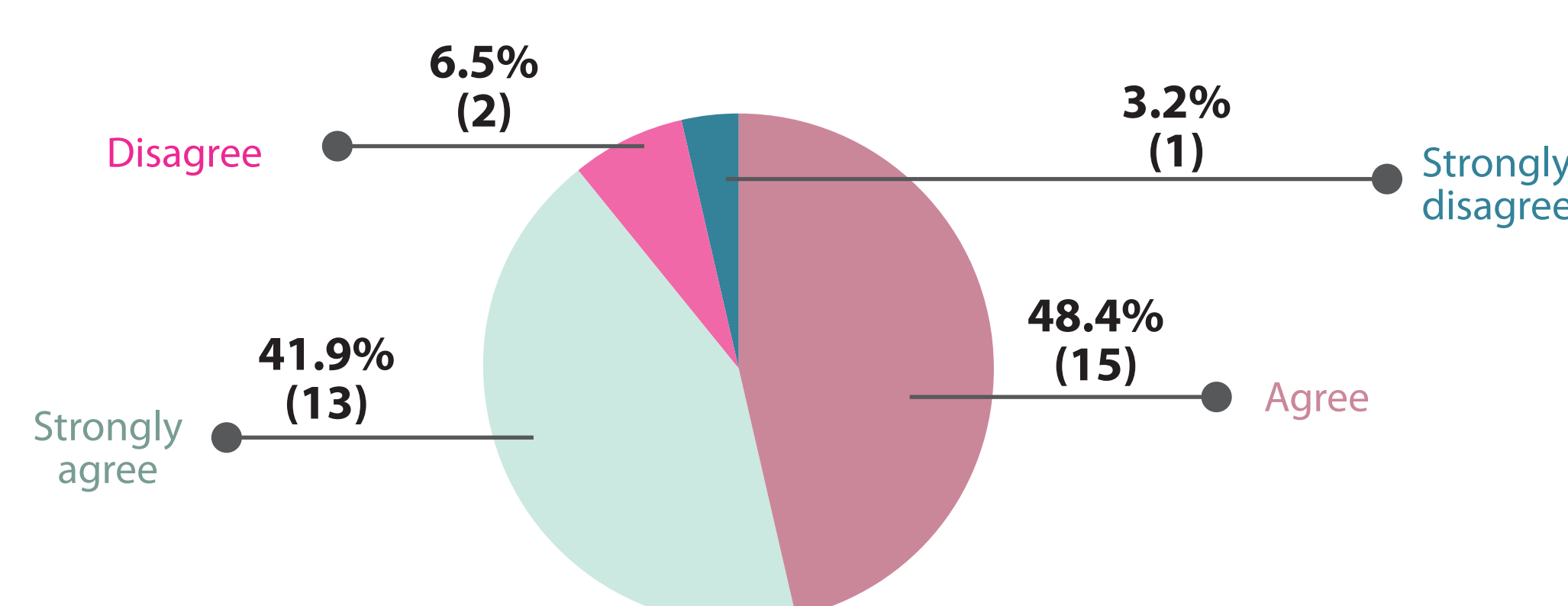
The Magic Wand worked really well on me because it numbed the area straight away which meant I didn't need to remember to put numbing cream on an hour before, it was also really good when the needle went in because it didn't hurt as much as it usually would. One thing I could add is it needs some bling - some sparkles or stickers on the handle because it's called a 'magic wand'.

”

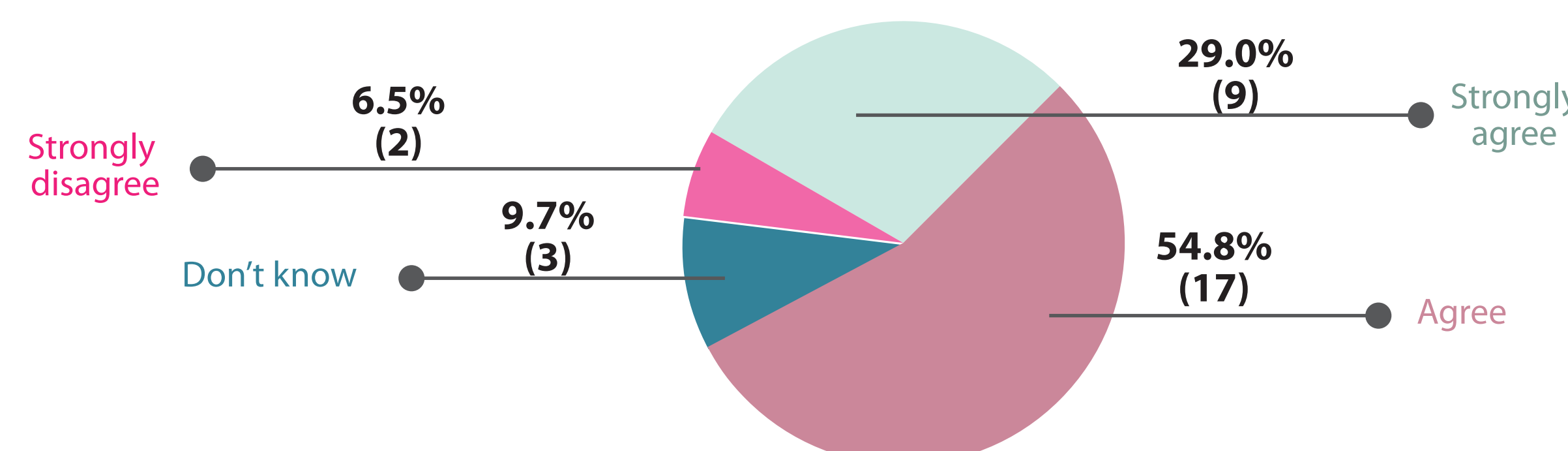
– Nikhita



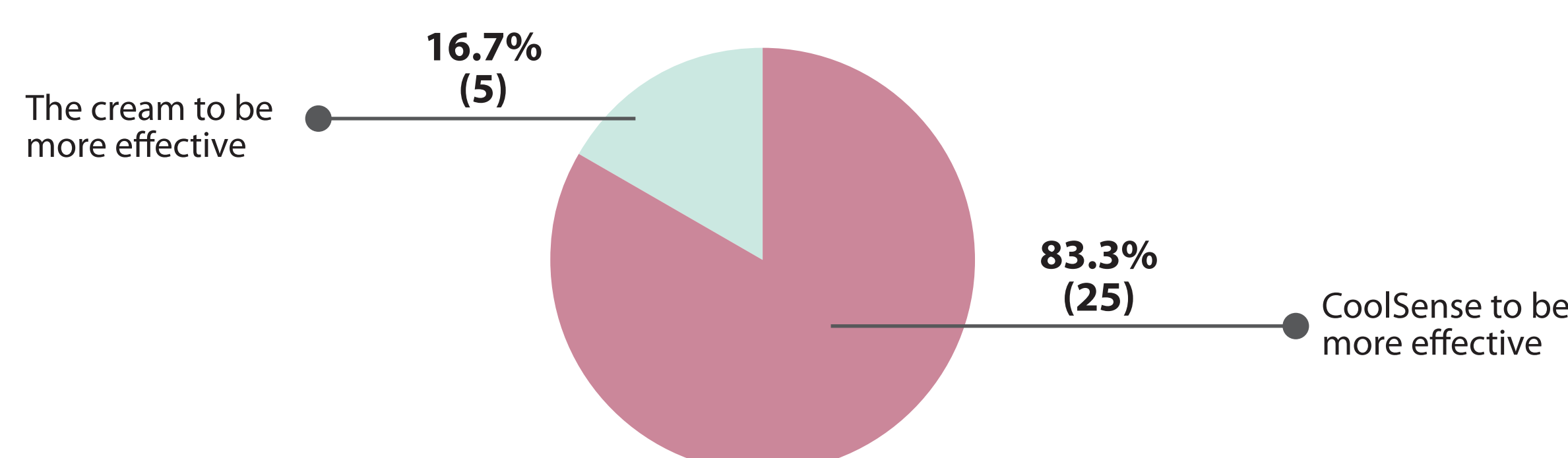
CoolSense saved us time at our last appointment compared to previous appointments where Emla cream or similar was used.



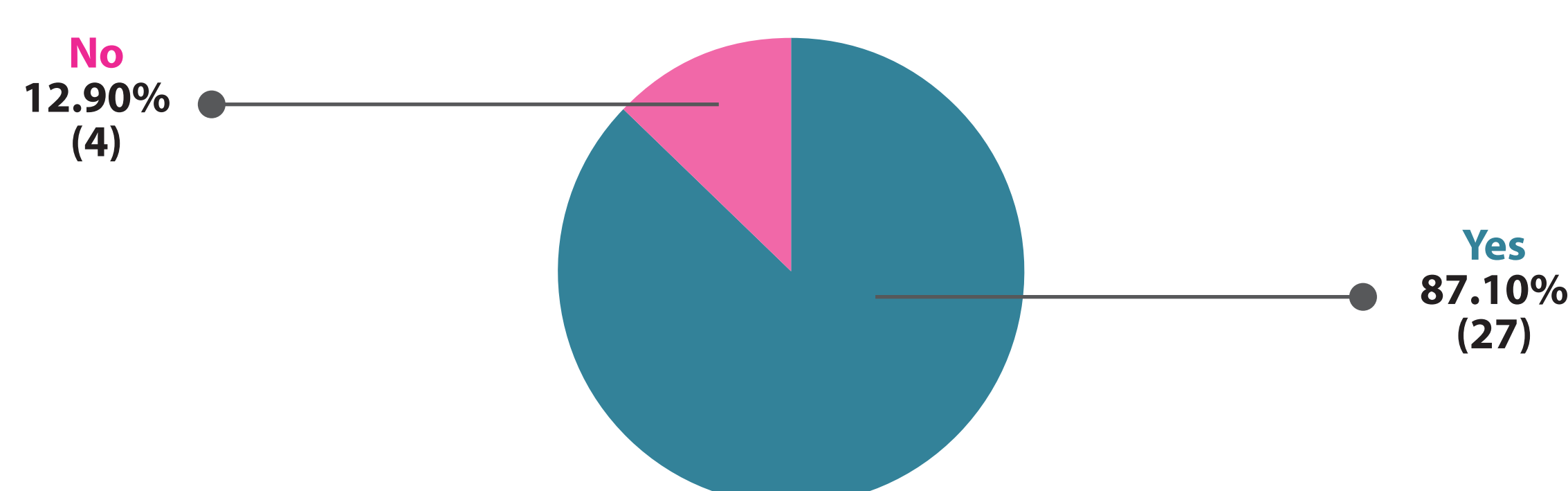
CoolSense works well in numbing my child's skin before needle insertion.



Comparing CoolSense with topical numbing creams used on my child I believe....



Would you recommend CoolSense to other parents/children?



FINANCIAL IMPLICATIONS

The annual spend across the Canterbury District Health Board (CDHB) Child Health Services on local anaesthetic creams (Emla®, LMX4®), Gels (Amethocaine 4%) and patches (Emla®) is in excess of \$60,000.

The topical anaesthetic cream (Emla®) takes an hour for optimal effect at a cost of \$9.00 per 5g single use tube. The pharmacy department has recently introduced a comparable product to Emla® in an effort to reduce costs to the CDHB, LMX4® – Lignocaine 4% at \$6.75 per 5g tube.

The cost of the CoolSense device is \$160 NZD which comes with an alcohol cartridge that yields 350+ uses. Replacement cartridges are \$60 NZD for a box of 2. This equates to 0.22 cents per application. Using the device as an alternative to Emla cream will potentially result in a saving of \$8,780 per 1000+ applications.

The introduction of the CoolSense pain numbing applicator could represent significant cost savings to the CDHB, and there is a plan to expand the use of the product to other areas where children have the same/similar type procedures across the CDHB.

REFERENCES

- 1 Bray, L., Shodin, J., & Carter, B. (2015). Holding and restraining children for clinical procedures within an acute care setting: and ethical consideration of the evidence. *Nursing Inquiry*, 22(2), 157-167. DOI: 10.1111/nin.12074
- 2 Kennedy, R. & Binns, F. (2016). Therapeutic safe holding with children and young people in hospital. *Nursing Children and Young People*, 28(4), 28-32. <http://dx.doi.org/10.7748/ncyp.28.4.28.s22>
- 3 The Royal Children's Hospital Melbourne. (2015). *Quality of Care Report 2014-15*. Retrieved from [http://www.rch.org.au/rch/About Us/Publications/](http://www.rch.org.au/rch/About%20Us/Publications/)