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Uman LS, Chambers CT, McGrath PJ, Kisely S. Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database of Systematic Reviews* 2006, Issue 4. Art. No.: CD005179. DOI: 10.1002/14651858.CD005179.pub2.

## **Review Opens Bag of Tricks for Reducing Pain from Children's Shots**

Every kid knows getting a shot can be painful, but there are many effective methods to help them cope. With a variety of tricks and techniques available - from blowing soap bubbles to teaching self-hypnosis - it doesn't matter what health professionals do so much as that they do something, suggests a new review.

The goal of the review was to identify the best psychological interventions for reducing pain and distress in children and teenagers undergoing a needle procedure. "This way, health care professionals, parents and even the children themselves, can have options to help make their experience less painful and distressing," said lead reviewer Lindsay Uman, of Dalhousie University in Halifax, Nova Scotia.

The review looked at 28 randomized controlled studies that excluded children with known needle phobias. The procedures studied included vaccinations, lumbar punctures and bone marrow aspirations. Nearly 2,000 children and teenagers participated.

The review appears in the current issue of *The Cochrane Library*, a publication of The Cochrane Collaboration, an international organization that evaluates research in all aspects of health care. Systematic reviews draw evidence-based conclusions about medical practice after considering both the content and quality of existing trials on a topic.

Techniques included cognitive interventions - such as distraction, hypnosis or having the child repeat positive thoughts such as "I can do this." Also analyzed were behavioral interventions such as breathing exercises or muscle relaxation, or combinations of cognitive and behavioral interventions. Some techniques were quite simple, while others involved video games, television or virtual reality headsets that provided both audio and visual stimulation.

The techniques with the most evidence for their effectiveness in reducing pain and distress during needle procedures include distraction, combined cognitive and behavioral interventions and hypnosis, said Uman, a doctoral student in clinical psychology.

Distraction can be as simple as having the child count or listen to a story or music while getting the shot. For example, a very young child can be distracted by blowing soap bubbles, Uman said.

Distraction could also include having a television for the child to watch or a video game handy, said Lynne Gerson Maxwell, M.D., associate professor of anesthesiology at the University of Pennsylvania. It can also be far more low-tech. Some anesthesiologists do magic tricks to keep

their young patients attention off the needle. “I sing to kids when I put them asleep,” she added.

“Cognitive-behavioral interventions are those aimed at targeting thoughts (cognitions) and behaviors. They are designed to help the child develop and apply coping skills in order to manage the pain and distress,” Maxwell said. The health professional can explain what will happen so that the child knows what to expect, and also encourage the child to use a distraction during the procedure.

Many of the techniques do not require much training on the part of doctors or nurses and can be easily implemented, Uman said. Hypnosis requires more training, but it has been taught to children in as little as one or two sessions plus some practice time.

“Hypnosis is a skill that the children can then take home with them and use again during other subsequent procedures,” Uman said. “Furthermore, the evidence shows that hypnosis is effective in reducing both pain and distress during needle procedures, specifically during more invasive ones such as bone marrow aspirations and lumbar punctures.”

Although topical anesthetics can help reduce the pain of a shot, they often need to be applied in advance. In contrast, the majority of psychological interventions can be used quickly and easily and do not need much advance preparation, Uman said.

Because many techniques are helpful at relieving pain and distress, it is a good idea for health professionals to have a few ready to use, geared toward different age groups, Uman said. “Ideally, we would recommend that health care professionals have various psychological interventions available, in order to have a variety of developmentally appropriate options for both children and adolescents.”

With children getting up to 20 vaccinations or other injections during their childhood, managing the pain is important. Needles are among the most feared experiences for children. And in a classic vicious cycle, the more a child fears the pain of a needle, the worse for everyone involved, and the fear only makes the next needle experience even worse.

The bottom line is that health professionals should always be able to do something to help children be less fearful of getting a shot, Maxwell said.

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