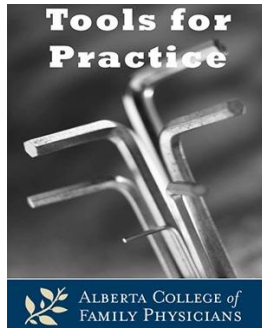


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Preventing Painful Pokes: Decreasing Immunization Pain in Kids

Clinical Question: What are the best methods for decreasing immunization pain in young children?

Bottom Line: The most consistent evidence is for breastfeeding (prevents more severe pain for 1 in 2 patients versus control), topical anesthetics (prevent clinically significant pain for 1 in 4 children versus placebo) and video distraction (reduces pain by ~2.4 points more than placebo on a 5-point pain scale). The evidence does not support pre-medicating with oral analgesics or reassurance/verbal distraction by parents for managing pain.

Evidence:

- Breastfeeding:
 - Most recent systematic review/meta-analysis: 10 randomized controlled trials (RCTs), 1,066 infants aged 1-12 months, versus various controls. Statistically significant reduced:¹
 - Cry duration by 38 seconds.
 - Composite pain scores Standard Mean Difference (SMD)=1.7 ("large" effect).
 - Example:² Severe pain on infant pain score, 16% versus 75% (control), Number Needed to Treat (NNT)=2.
 - Other systematic reviews found similar.^{3,4}
- Topical anesthetics (examples lidocaine/prilocaine cream):
 - Two Systematic reviews:^{4,5}
 - "Distress" (13 RCTs, 1,424 children age <3 years):¹ SMD=0.91, (probable "large" effect).
 - Example:⁶ Children who cried after vaccination, 7% versus 22% (placebo), NNT=7.
 - Pain (ages 4-11); three RCTs (n=269): No effect.⁴ But, if remove highest risk-of-bias study, SMD=0.47 ("moderate" effect).
 - Example:⁷ Clinically significant pain, 17% versus 43% (placebo), NNT=4.
 - On 100-point pain scale: Topicals 17 points better than placebo (two RCTs, n=253).⁷
- Sweet-tasting solutions:

- Most recent systematic review:⁸
 - No significant difference in cry duration or composite pain scores (six RCTs, 520 children aged 1-4).
 - One RCT (n=472) found fewer children had severe pain scores: 36% versus 64%, NNT=4.
- Inconsistent effects also in other reviews.^{1,4}
- Video distraction:
 - Three systematic reviews (1-4 RCTs, 90-456 patients):⁹⁻¹¹
 - Five of 9 outcomes positive, with “moderate-large” effect,^{3,4} (SMD 0.49-0.84).
 - Example:¹² One RCT, pain scale out of 5 (lower worse): 4.3 video versus 1.9 control.

Context:

- Pre-medicating with oral pain relievers and reassurance/verbal distraction by parents does not reduce pain.^{4,11,13}
- Further information on injection technique to minimize pain and resources for parents available online.¹⁴

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Disclosures:

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