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Needle Pain in Children:

Why it matters and what we can do

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The problem we've been ignoring

For most adults, a blood test is a minor inconvenience. For a child, it can be one of the most distressing experiences of their healthcare journey. Needle pain, including venepuncture, cannulation and capillary sampling, is the most common source of iatrogenic pain in children and is largely preventable.

Yet despite decades of evidence, needle pain in paediatric patients remains undertreated. Children frequently undergo procedures with no analgesic preparation, no distraction support and no recognition that their fear and pain are a clinical problem worth solving. The consequences extend beyond the moment. Poorly managed procedural pain in childhood is a well-documented driver of healthcare avoidance, needle phobia, and anxiety in adolescence and adult life.

Why children are different

Pain is not simply a sensory experience. In children, the emotional and contextual components of pain—anticipatory anxiety, loss of control, unfamiliar environments and parental distress—are amplified. Young children lack the cognitive tools to rationalise what is happening to them. Even older children and adolescents may display significant distress disproportionate to what adults expect. Effective pain management must be age-appropriate, not one-size-fits-all.

Fear and pain also interact in a self-reinforcing cycle. A child who has had a traumatic blood collection experience arrives at their next appointment already in a state of heightened distress - making procedural success harder and pain perception worse. Breaking this cycle early is far more effective than managing an entrenched needle phobia later.

What the evidence tells us

The good news is that we know how to manage needle pain effectively. A strong and growing evidence base, including systematic reviews, the international gold standard in this space, identifies a cluster of interventions that, used in combination, dramatically reduce pain and distress in children undergoing needle procedures.

These fall into three categories:

1. Topical anaesthesia

Topical local anaesthetic creams (such as EMLA or AnGEL) applied 30–60 minutes before a procedure significantly reduce pain at the needle site. They are safe, effective and underused. Incorporation into standard pre-procedure preparation, including providing families with a prescription or take-home cream for elective blood tests, is a straightforward systems change with immediate impact.

2. Positioning and physical comfort

Supine restraint, the traditional approach of lying a child flat and holding them still, is associated with greater distress, poorer outcomes and lasting psychological harm. Current best practice favours upright positioning (seated on a parent's lap for young children, sitting independently for older children) and avoidance of forceful restraint. This simple change requires no equipment and can be implemented immediately.

3. Psychological strategies

Distraction is the most evidence-supported non-pharmacological intervention for procedural pain in children - actively engaging the brain's attentional systems and competing with pain processing. Coaching parents to lead distraction, rather than offering reassurance ("it'll be okay, it won't hurt"), is a nuanced but important distinction. Reassurance-focused parental behaviour is associated with *increased* child distress.

Sucrose solution (for infants under 12 months) and breastfeeding during procedures are also well-supported and easily implemented.

The role of pathology services

Pathology collection centres occupy a critical position in this story.

They are often the point of care for elective blood tests, a setting where preparation time exists, where the environment can be designed to support children and where staff training can be systematically implemented.

What referring clinicians can do

When ordering blood tests for children, consider:

- Bundling tests where clinically appropriate to minimise the number of collections.
- Prescribing or recommending topical anaesthetic for elective procedures, particularly for younger children or those with known needle anxiety.
- Flagging children with significant needle phobia on referral, so collection staff can prepare appropriately.
- Discussing the collection experience with families before the appointment - what to bring, how to position their child and how to use distraction.

For children with chronic conditions requiring frequent blood tests - including those with juvenile idiopathic arthritis, inflammatory bowel disease, renal disease or oncological conditions - a proactive pain management plan is part of good clinical care.

A word on consent and restraint

Forceful restraint of a child for a non-emergency procedure is ethically problematic and, in most cases, clinically unnecessary when proper preparation has occurred.

Where a child is extremely distressed, deferral and rescheduling with enhanced preparation, or referral to a service with specialised paediatric care and/or procedural analgesia and sedation, is almost always preferable to proceeding under duress.

Conclusion

Needle pain is not a trivial side effect of paediatric healthcare; it is a clinical problem with documented short- and long-term consequences. The evidence base for prevention is strong, the interventions are accessible, and the opportunity for pathology services and referring clinicians to lead meaningful change is real.

Useful clinical resources

- The Meg Foundation for Pain: procedural pain resources for providers and families. www.megfoundationforpain.org
- Comfort Kids: Toolkit and other resources for kids and families rch.org.au/comfortkids
- ChildKind International: childkindinternational.org
- HELPinKids & Adults / It Doesn't Have to Hurt: https://phm.utoronto.ca/helpinkids/index.html
- Canadian Paediatric Society (CPS), updated March 2025: https://cps.ca/en/documents/position/managing-pain-and-distress

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