

Search Strategies

Literature from 1999 to 2015 was reviewed to obtain clinical research studies related to this issue.

Databases Used

CINAHL, PubMed

Critically Analyze the Evidence

GRADE criteria: Evidence quality low; recommendation strong (Guyatt, Oxman, Vist, et al, 2008)

The searches reviewed were mostly small studies. There were no randomized trials, double-blinded trials, or large clinical studies addressing the subject of IM injections in children.

- Studies in adults indicate that injection pain can be minimized by deep IM administration, because muscle tissue has fewer nerve endings and medications are absorbed faster than those administered subcutaneously (Ogston-Tuck, 2014a; Zuckerman, 2000). Immunizations such as diphtheria, tetanus, and acellular pertussis (DTaP) and hepatitis A and B contain an aluminum adjuvant that, if injected into subcutaneous tissue, increases the incidence of local reactions. Inadvertent injection into subcutaneous tissue may be caused by use of a needle too short to reach IM tissue (Zuckerman, 2000).
- One study found that 4-month-old infants experienced fewer local side effects (redness, tenderness, and swelling) when immunizations were administered into the anterior aspect of the thigh with a 25-mm (1-inch) needle as opposed to the shorter 16-mm (5/8-inch) needle (Diggle and Deeks, 2000).
- Another study comparing needle length and injection method found that a longer needle (25 mm) was preferred for injection when bunching the skin and injecting, whereas a shorter needle (16 mm) was perceived as causing fewer localized reactions when the injection was administered with the skin being held taut (Groswasser, Kahn, Bouche, et al, 1997). However, the study's conclusions fail to address whether needle lengths were applicable to both the deltoid and vastus lateralis muscles.