

POEMs

Patient-Oriented Evidence that Matters

This POEM for February shows us that small differences in technique do make a difference. We have always used 25 G needles for immunisation and I now use them for almost everything including soft tissue and joint steroid injections. Editor.

Clinical question

What is the optimal injection technique for delivering vaccinations to infants and toddlers?

Bottom line

Share this information with your office nurses: Injecting vaccines perpendicular to an infant's or toddler's thigh reduces adverse reactions at 24 hours, including irritability, fever, persistent crying/screaming, drowsiness and vomiting/poor feeding. The usual American technique produced the worst reactions. Parental satisfaction and bruising rates do not appear to be significantly affected by injection technique. (LOE=1b)

Reference

Cook IF, Murtagh J. Optimal technique for intramuscular injection of infants and toddlers: A randomized trial. *Med J Aust* 2005; 183:60-63.

Study Design

Randomised controlled trial (single-blinded)

Allocation

Concealed

Setting

Outpatient (primary care)

Synopsis

Three injection techniques are currently used for antero-lateral thigh vaccination: the Australian (23-gauge, 25-mm needle inserted at the junction of the upper and middle thirds of the vastus lateralis angled at 45 to 60 degrees

to the skin, pointing toward the knee); the World Health Organization (WHO; 25-gauge, 16-mm needle inserted at an angle of 90 degrees to the long axis of the femur with the skin compressed between the index finger and thumb); and the United States (23-gauge, 25-mm needle inserted into the upper lateral quadrant of the thigh at an angle of 45 degrees to the long axis of the femur and posterior at an angle of 45 degrees to the table top with the skin compressed between the index finger and thumb). The authors randomly assigned (concealed allocation assignment) 375 infants and children to one of the three techniques. Participants received the usual childhood vaccinations, including acellular pertussis, at two, four, six, and 18 months at a single office. Individuals assessing outcomes were blinded to treatment group assignment. Complete follow-up at 24 hours occurred for 96% of the study participants. The reason for the unavailability of the children who were not evaluated was parental non-compliance, not adverse effects. Using intention-to-treat analysis, the WHO technique resulted in significantly fewer patients (30%) with systemic adverse reactions at 24 hours including irritability, fever, persistent crying/screaming, drowsiness, and vomiting/poor feeding compared with the Australian (45.5%) and US (49.2%) techniques (numbers needed to treat = 7 and 5, respectively). Although the rate of bruising was highest with the US technique (6.7% vs 0.8% for the WHO technique), the differences were not statistically significant. Parents reported similar acceptability in each of the groups.