

VENEPUNCTURE Supporting information

This guideline has been prepared with reference to the following:

Royal College of Nursing. Competences: an education and training competence framework for administering medicines intravenously to children and young people. 2017. RCN. London

<https://www.rcn.org.uk/professional-development/publications/pub-006302>

Wilks Z. Peripheral venous cannulation of children. 2017. Great Ormond Street Hospital

United Kingdom Blood Transfusion Services. 5.6: Performance of the venepuncture (from Guidelines for the Blood Transfusion Services in the UK, 8th ed.). 2013

<https://www.transfusionguidelines.org/red-book/chapter-5-collection-of-a-blood-or-component-donation/5-6-performance-of-the-venepuncture>

World Health Organization. WHO guidelines on drawing blood: best practices in phlebotomy. 2010. WHO

<https://www.ncbi.nlm.nih.gov/books/NBK138650/>

Whitehead E. Venepuncture. 2010. East Lancashire HC NHS Trust

Venepuncture is superior to heel prick for blood sampling in neonates?

A Cochrane systematic review of 6 trials in 478 infants (Shah, 2011) found a statistically significantly lower pain scores for venepuncture compared to heel prick. Additionally, there was less need for repeated skin puncture when venepuncture was used (NNT=3).

Shah V, Ohlsson A. Venepuncture versus heel lance for blood sampling in term neonates. Cochrane Database of Systematic Reviews 2011, Art. No.: CD001452

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001452.pub4/full>

Evidence Level: I

Sucrose may be used for analgesia?

A 2016 systematic review of 9 RCTs found high-quality evidence for the use of 2 mL 24% sucrose prior to venepuncture (Stevens, 2016). Premature Infant Pain Profile (PIPP) during venepuncture was reduced by a weighted mean difference of 2.79 (95% confidence interval [CI] 3.76 to 1.83).

A double-blind trial in 304 newborns (Dilen, 2010) compared four selected 2 mL solutions (10, 20, 30% glucose, and placebo) administered orally before venepuncture. Pain was scored using a validated pain scale (the "Leuven Pain Scale"). A significantly lower average pain score was noted in the 30% glucose group (3.99) when compared with the placebo group (8.43). The average pain scores in the 20% glucose group (5.26) and the 10% glucose group (5.92) were also significantly lower than those in the placebo group.

A double-blind trial of 330 healthy term newborns (Taddio 2011) found that sucrose was more effective than liposomal lidocaine for reducing pain during venepuncture. They also found that the addition when liposomal lidocaine and sucrose were used in combination it did confer any benefits to sucrose alone. Before venipuncture, neonates received (1) 1 g of liposomal lidocaine cream topically, (2) 2 mL of 24% sucrose solution orally, or (3) sucrose and liposomal lidocaine. The facial grimacing score (0-100) was used to assess pain. Facial grimacing scores were lower in the sucrose group compared with those in the liposomal lidocaine group (mean difference: -27 [95% confidence interval (CI): -36 to -19; P < .001) and for the sucrose plus liposomal lidocaine group compared with those in the liposomal lidocaine group (mean difference: -23 [95% CI: -31 to -14]; P < .001). The sucrose and sucrose plus liposomal lidocaine groups did not differ (mean difference: -5 [95% CI: -13 to 4]; P = .3).

Dilen B, Elseviers M. Oral glucose solution as pain relief in newborns: results of a clinical trial. Birth 2010;37:98-105

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Please contact the BCGP Clinical Effectiveness Librarian at bedsideclinicalguidelines@uhnm.nhs.uk

Stevens B, Yamada J, Ohlsson A et al. Sucrose for analgesia in newborn infants undergoing painful procedures. Cochrane Database Syst Rev. 2016
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001069.pub5/full>

Taddio A, Shah V, Stephens D et al. Effects of liposomal lidocaine and sucrose alone and in combination for venepuncture pain in newborns. Pediatrics 2011; 127: 940-7
<http://pediatrics.aappublications.org/content/127/4/e940.long>

Evidence Level: I

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