Glue or sutures for facial lacerations in children
Report by Simon Carley, Specialist Registrar
Search checked by Mohammed Al Zarad, Research Fellow

Clinical scenario
A 3 year old girl presents to the emergency department after catching her face on the edge of a table. She has a 2.5 cm laceration to the cheek, which requires closure. The wound is not suitable for Steristrips. The parents are very worried about her having stitches and also about scarring. You wonder whether glue is the best option for this child.

Three part question
In [children with facial lacerations requiring closure] is [wound glue better than sutures] at [improving cosmetic outcome and reducing the distress of the procedure]?

Search strategy
Medline 1966 to 7/99 using the OVID interface, (exp fibrin tissue adhesive OR exp tissue adhesives OR exp enbucrilate OR exp cyanoacrylates OR wound glue$.$mp OR histoacryl.mp OR octylcyanoacrylate$.$mp OR butylcyanoacrylate$.$mp AND (exp wounds and injuries OR wound$.$mp OR lacerate$.$mp OR laceration$.$mp) AND maximally sensitive RCT filter) LIMIT to human AND english.

Search outcome
Altogether 138 papers were found of which 130 were irrelevant or of insufficient quality for inclusion. The remaining eight papers are shown in table 4.

Comment
There are a number of well designed prospective randomised controlled trials that directly address the three part question posed, and a number that are relevant. Cosmesis is a difficult outcome since true blinding is impossible because of suture marks. Glue is quicker to apply, causes less procedural pain, and gives equivalent cosmetic results to sutures. One trial shows a higher wound complication rate; this emphasises the point that a glued wound requires the same diligence as a wound that is to be sutured.

Table 4

<table>
<thead>
<tr>
<th>Author, date, and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quinn et al, 1993, Canada</td>
<td>81 children with facial lacerations less than 4 cm in length and 0.5 cm wide</td>
<td>PRCT</td>
<td>Cosmesis at 3 months</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Parent view of procedural pain</td>
<td>Less with glue (43.7 v 24.7mm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time taken for procedure</td>
<td>Shorter with glue (15.6 min v 7 min)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sutures v histoacryl blue</td>
<td>Preliminary report of reference 4</td>
<td></td>
</tr>
<tr>
<td>Brosn et al, 1996, USA</td>
<td>61 children aged 1-17 years with lacerations less than 5 cm</td>
<td>PRCT</td>
<td>Cosmesis at 2 months</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Parent view of procedural pain</td>
<td>Less with glue (29 mm v 8 mm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time taken for procedure</td>
<td>Shorter with glue (17 min v 7 min)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sutures v histoacryl blue</td>
<td>Preliminary report of reference 5</td>
<td>Adults</td>
</tr>
<tr>
<td>Quinn et al, 1997, USA</td>
<td>130 adults with facial and selected extremity lacerations (not hands and feet)</td>
<td>PRCT</td>
<td>Cosmesis at 3 months</td>
<td>No significant difference</td>
<td>Only 32 of 61 children were followed up</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time taken for procedure</td>
<td>Shorter with glue (12.4 min v 3.6 min)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time to healing</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sutures v octylcyanoacrylate glue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simon et al, 1997, USA</td>
<td>61 children aged 1-17 years with lacerations less than 5 cm</td>
<td>PRCT</td>
<td>Cosmesis at 1 year</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time to healing</td>
<td>No significant difference</td>
<td>Only 77 of 130 patients were followed up Adults</td>
</tr>
<tr>
<td>Quinn et al, 1998, USA</td>
<td>130 adults with facial and selected extremity lacerations (not hands and feet)</td>
<td>PRCT</td>
<td>Cosmesis at 1 year</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time taken for procedure</td>
<td>No significant difference</td>
<td>Wound assessments were not blinded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sutures v octylcyanoacrylate glue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singer et al, 1998, USA</td>
<td>124 patients over 1 year of age with recent non-bite, non-crush lacerations</td>
<td>PRCT</td>
<td>Cosmesis at 3 months</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Patients wound rating</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Use of irrigation or scrub</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Need for local anaesthesia</td>
<td>Less with glue (89% v 21%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wound complications</td>
<td>1 infection and 2 dehiscences in the glue group</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Standard wound closure (sutures or Steristrips) v octylcyanoacrylate glue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barnett et al, 1998, Australia</td>
<td>163 children over 4 years old with recent lacerations less than 5 cm in length</td>
<td>PRCT</td>
<td>Cosmesis at 3 months</td>
<td>No significant difference</td>
<td>Poor follow up Wound assessments were not blinded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time taken for wound repair</td>
<td>Poor follow up Less with glue (0-2 min v 6-10 min)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Care view of procedural pain</td>
<td>Less with glue</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Child's view of procedural pain</td>
<td>No difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wound complications</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sutures v histoacryl blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bruns et al, 1998, USA</td>
<td>83 children with lacerations</td>
<td>PRCT</td>
<td>Cosmesis at 12 months</td>
<td>No significant difference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time taken for wound repair</td>
<td>Poor follow up Less with glue</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Parent's view of procedural pain</td>
<td>20% of patients not followed up</td>
<td></td>
</tr>
</tbody>
</table>

PRCT = prospective randomised controlled trial.
Clinical bottom line
Glue is the wound closure method of choice in recent lacerations to the face in children.

The BMA library supplied the papers.