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<tr>
<th>NAME OF DOCUMENT</th>
<th>Neonatal Observations Following Assisted Vaginal Birth</th>
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<tbody>
<tr>
<td>TYPE OF DOCUMENT</td>
<td>Procedure</td>
</tr>
<tr>
<td>DOCUMENT NUMBER</td>
<td>SESLHNPD/142</td>
</tr>
<tr>
<td>DATE OF PUBLICATION</td>
<td>October 2011</td>
</tr>
<tr>
<td>RISK RATING</td>
<td>Medium</td>
</tr>
<tr>
<td>LEVEL OF EVIDENCE</td>
<td></td>
</tr>
<tr>
<td>REVIEW DATE</td>
<td>October 2014</td>
</tr>
<tr>
<td>FORMER REFERENCE(S)</td>
<td>Procedure following coronial enquiry</td>
</tr>
<tr>
<td>EXECUTIVE SPONSOR or EXECUTIVE CLINICAL SPONSOR</td>
<td>Professor William Walters- Director Women &amp; Babies Clinical Stream</td>
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<tr>
<td>KEY TERMS</td>
<td>Vacuum extraction, Forceps, sub galeal haemorrhage, cephalohaematoma, observations, hypovolaemia</td>
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<tr>
<td>SUMMARY</td>
<td>A guide to extra observations and appropriate referral pathways for staff caring for neonates post instrumental birth.</td>
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1. **POLICY STATEMENT**
To ensure consistent and high quality observations and documentation for babies following an assisted vaginal birth procedure.

2. **BACKGROUND**
The rate of vacuum delivery has surpassed that of forceps delivery over the past two decades. Local tissue injuries to the scalp are usually of limited significance and comprise scalp abrasions and cephalo-haematoma however extracranial subgaleal haemorrhage can be a serious complication following instrumental delivery, together with other intracranial haemorrhage.

Subgaleal haemorrhage is a potentially life threatening emergency. Therefore there needs to be a high index of suspicion in the ‘at risk’ newborn.

Visual inspection alone without palpation may miss a SGH because the blood loss moulds to the shape of the scalp leading to late detection. The vast majority can be detected within the first hour after delivery.

Midwives, student midwives, nurses, student nurses, mothercraft nurses and medical officers will undertake the following observations on the neonate following an assisted vaginal birth.

3. **RESPONSIBILITIES**

**Employees and Medical Staff will:** Ensure familiarity with the policy and the procedure and any related local business rules.

**Network Managers/ Service Managers and Line Managers will:** Ensure that staff are familiar with the Local Health District policies and procedures and the requirement for adherence.

Periodic (9/12) review of compliance and take appropriate action if policies are breeched.

4. **PROCEDURE**

4.1 **Observations in the Delivery and Postnatal ward after vacuum extraction**
All babies who have had a vacuum delivery should have: temperature, apex rate, respiration rate, and colour and scalp observations at 1 hour, 2 hours, 4 hours and 8 hours of age.

- Ensure that intramuscular vitamin K was given immediately following birth.
- If consent for IM Vitamin K is refused, parents should be counselled about the risks, including the risk of SGH.
- **Always** inspect for a boggy swelling of the scalp especially at the cup site.
- Palpate for a ballotable mass or movement of fluid in scalp, noting colour and head shape including displacement of ears or pitting oedema
- Document all observations on the postnatal Newborn Care Plan MR 504

Be especially vigilant for these situations of increased risk:
1. Failed vacuum extraction
2. Extraction taking more than 3 contractions, 20 minutes extraction time, or more than 2 cup detachments
3. Placement of the vacuum cup over the sagittal suture near the anterior fontanelle.
Babies may be transferred to postnatal ward if SGH is not suspected initially, where scalp observations and palpation are then continued at 1, 2, 4 and 8 hours.

4.2 Recognition of subgaleal haemorrhage: Local signs
- The initial localised signs of a SGH are of vague, generalised scalp swelling with laxity of the scalp at the site of cup application. The chignon (caput) in contrast, is firm in consistency and usually resolves within one hour.
- If SGH haemorrhage progresses, the scalp feels fluctuant 'like a leather pouch filled with fluid' with free fluid between the scalp and skull and often irritability and pain on handling.
- Large blood loss can occur despite a small increase in head circumference
- The haemorrhage is not contained by suture lines (see diagram below). In severe cases, ear lobes may be displaced or shifted downwards by mass effect and eyelids may appear puffy.

4.3 Recognition of hypovolaemia: Systemic signs
- Tachycardia (>160/min), poor peripheral perfusion (capillary refill > 3secs) and/or pallor (vasoconstriction and anaemia) are early signs of significant blood loss.
- Hypotension (mean BP <40 mmHg in a term infant) is a late sign of hypovolaemia and should not be relied upon for early recognition.
- Lethargy, tachypnoea, anaemia, acidosis and coagulopathy may ensue leading to circulatory collapse.

4.4 When SGH is suspected
- Inform medical staff immediately for review
- Transfer to SCN for monitoring and management when local signs are confirmed or there are any signs suggestive of significant blood loss.

4.5 Treatment in NICU/SCN
Observations in SCN for the first 12 hours
- Continuous pulse oximetry and cardiac monitor and record observations initially half hourly to hourly
- Record admission blood pressure and initiate strict fluid balance documentation.
- Palpate scalp and measure head circumference at 1, 2, 4 & 8hours.
- Initiate blood pressure monitoring between 1-4 hourly, frequency depending on the presence of other signs of hypovolaemia (see above)

4.6 Immediate Investigation and Management
- Stabilisation should not be delayed by investigation or imaging.
- Obtain FBC, BGL, Group and Cross match on admission
- In symptomatic SGH, establish IV access and obtain coagulation profile, blood gases including lactate, and electrolytes.
- Prompt aggressive fluid resuscitation using normal saline and blood products (FFP and blood) to correct acidosis & coagulopathy is vital in the survival and outcome of SGH babies. It is important to assess the response to the fluid & blood product resuscitation.
- May confirm the diagnosis with imaging. Choice of ultrasound (point of care ultrasound if available), CT scan or MRI may depend if other intracranial haemorrhages or cerebral ischaemic insults are also suspected and following discussion with the radiologist.
- Invasive blood pressure monitoring and transfer to tertiary neonatal units may be required in severe cases.
4.7 Continuing management in SCN

- In suspected but subsequently unconfirmed cases or in asymptomatic and small SGH, the baby may be discharged from SCN after 12 to 24 hour stable observations and following review by consultant paediatrician.
- Babies should be reviewed regularly for hyperbilirubinaemia during the first few days of life.

4.8 In Summary

1. Detect SGH by regular scalp palpation during the first hours after vacuum delivery
2. Observe and give aggressive fluid resuscitation if signs of significant blood loss are present

5 DIFFERENTIATING SUB GALEAL HAEMORRHAGE AND CEPHALOHAEMATOMA (CONFINED BY PERIOSTEUM TO MIDLINE)

### Cephalohaematoma

### Sub Galeal Haemorrhage

**Subdural and other intracranial haemorrhages**

Subdural and cerebral haemorrhage may occur after spontaneous delivery (0.4 per 1000) or caesarean section. The prevalence is increased equally with vacuum delivery or forceps (1 per 1000) but the highest (2 per 1000) after caesarean section following failed assisted vaginal delivery or after combined vacuum and forceps delivery.

There are no other special observations after instrumental delivery for subdural or other intracranial haemorrhages. These haemorrhages often present with neurological symptoms hours after delivery and not because of blood loss.

6. MANAGEMENT

- Apnoea and seizures are the common presentations.
- Clinical signs include unequal pupils, eye deviation, irritability, tense fontanelle and coma.
- Forceps associated local trauma may include skull fracture
- Diagnosis is established by cranial CT or MRI. Small SDH may be missed by routine cranial ultrasound because of limited peripheral views.
- Subdural hematomas have been associated with coagulation disorder
- Management is usually conservative.
- Consider transfer to tertiary neonatal unit for evaluation and surgical consideration.

7. DOCUMENTATION

Neonatal observation chart / careplan, clinical notes
Refer deviations from the norm.
8. **AUDIT**
   Not required

9. **REFERENCES**
   South Eastern Sydney Local Health District Policy - Neonatal Observations Following Assisted Vaginal Birth Policy - SESLHNPD/134

   Royal Australian and New Zealand College of Obstetricians and Gynaecologists Prevention, Detection and Management of Subgaleal Haemorrhage in the Newborn 2009; C-Obs 28

   RPA Newborn Care Guidelines Observation of the Newborn following Vacuum Assisted Birth Identification and management of subgaleal haemorrhage December 2009


   Boo NY, Foong KW, Mahsy ZA, Yong SC, Jaafar R. Risk factors associated with subaponeurotic haemorrhage in full term infants exposed to vacuum extraction. BJOG, 2005: 112; 1516-21.


10. **REVISION AND APPROVAL HISTORY**

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<tr>
<th>Date</th>
<th>Revision No.</th>
<th>Author and Approval</th>
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<tr>
<td>September 2011</td>
<td>Draft</td>
<td>SESLHD Clinical and Quality Council – August 2011 advised that the SESLHNPD/134 Policy needed to be separated into a procedure Dee Sinclair drafted the procedure</td>
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<tr>
<td>September 2011</td>
<td>1</td>
<td>Approved by A/Prof Kei Lui</td>
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