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Observation of the newborn following an assisted vaginal birth

Hutt Maternity Policies provide guidance for the midwives and medical staff working in Hutt Maternity Services. Please discuss policies relevant to your care with your Lead Maternity Carer.

Purpose

- The careful observation of the newborn for signs of cerebral trauma is essential following an assisted vaginal birth. Two serious life-threatening complications have been reported; subgaleal and intracranial haemorrhage
- This policy will ensure all neonates who have been born by assisted delivery (vacuum extraction or forceps) receive the appropriate monitoring and surveillance within Hutt Maternity and SCBU.
- If a complication is detected, then then a paediatric review must be sought **immediately** as per the algorithm

Scope

- All core midwives
- All access holders
- All obstetricians, registrars and senior house officers
- All paediatricians, registrars and senior house offices
- All nurses working in SCBU and postnatal ward

Definitions:

Assisted vaginal birth refers to emergency or elective assisted birth using either vacuum extraction (ventouse) or forceps.

Forceps are used in second stage to expedite the delivery of the fetal head, when there is slow progress and /or signs of fetal distress.

Practice point:

A forceps birth is defined as 'difficult' if

- Birth is not achieved after three consecutive pulls
- The blades are incorrectly applied
- There is significant vaginal trauma

Vacuum extraction – is the use of either a silastic or metal cup, which is attached to the fetal scalp with the aid of suction. A vacuum is created inside the cup which is connected to a pump by rubber tubing. As the woman pushes with each contraction, traction is applied to the vacuum to assist in the birth of the infant.

Practice point:

A vacuum extraction is defined as 'difficult' if any of the following events occur:

- The vacuum cup has detached three times
- There is no progress in descent over three consecutive pulls
- The total application of the vacuum has exceeded twenty minutes

Indications for additional monitoring by midwifery and nursing staff

- Any assisted vaginal birth

Increased vigilance is also required in the following circumstances:

- Failed forceps leading onto a vacuum extraction and/or caesarean section birth
- Failed vacuum extraction leading onto a forceps and/or caesarean section birth
- When an infant has been born to a woman with a low platelet count
- The infant is pre term

Conditions which may affect the infant that are associated with assisted vaginal births

As a result of being born by assisted via vacuum extraction and/or forceps, the newborn may receive some kind of birth trauma. Injuries may include abrasions, caput succedaneum, chignon, cephalohematoma, subgaleal haemorrhage (SGH) or an intracranial haemorrhage (ICH).

Other complications that can occur include subconjunctival haemorrhage, facial nerve palsy and skull fractures.

Scalp abrasion

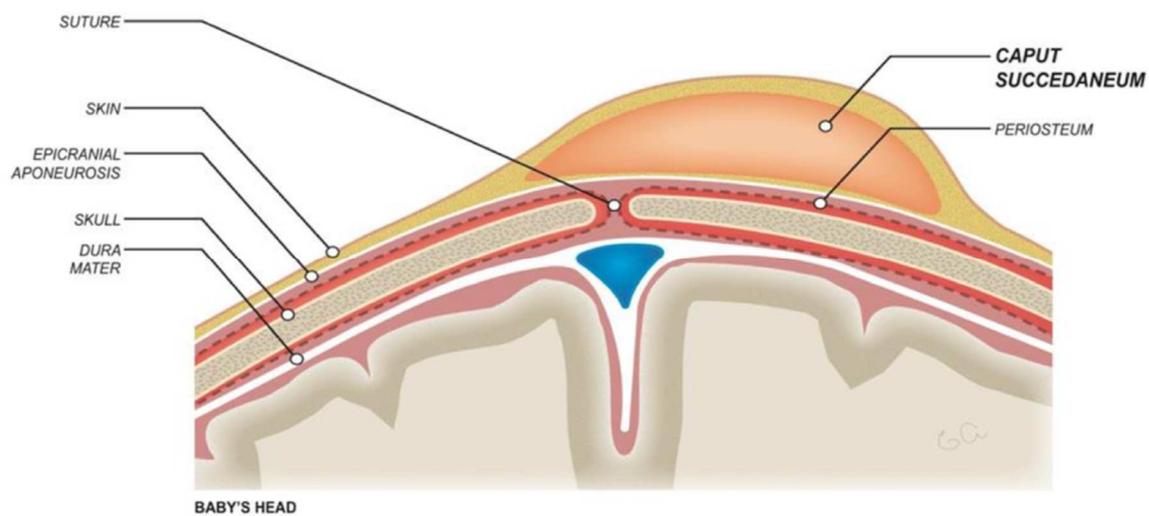
- Abrasions to the scalp usually occur during vacuum extraction – especially if the extraction was prolonged or there was sudden cup detachment
- The majority of abrasions are superficial and small. The injured area should be kept clean and dry and observed daily for signs of healing and/or infection
- The parent/whānau should be reassured that the abrasion will heal without scarring

Caput succedaneum

This is an oedematous swelling which develops on the presenting part of the fetus. It is caused by the pressure of the dilating cervical os. Rupture of the forewaters restricts venous return to the fetal scalp which then causes a serosanguinous collection to occur within the superficial tissues.

Signs and symptoms of a caput succedaneum:

- It can be present at birth
- It does not tend to enlarge
- It may cross a suture line
- It usually recedes within 36 hours
- It is diffuse and pits on pressure
- A double caput succedaneum is always unilateral
- There are no long-term sequelae



Chignon

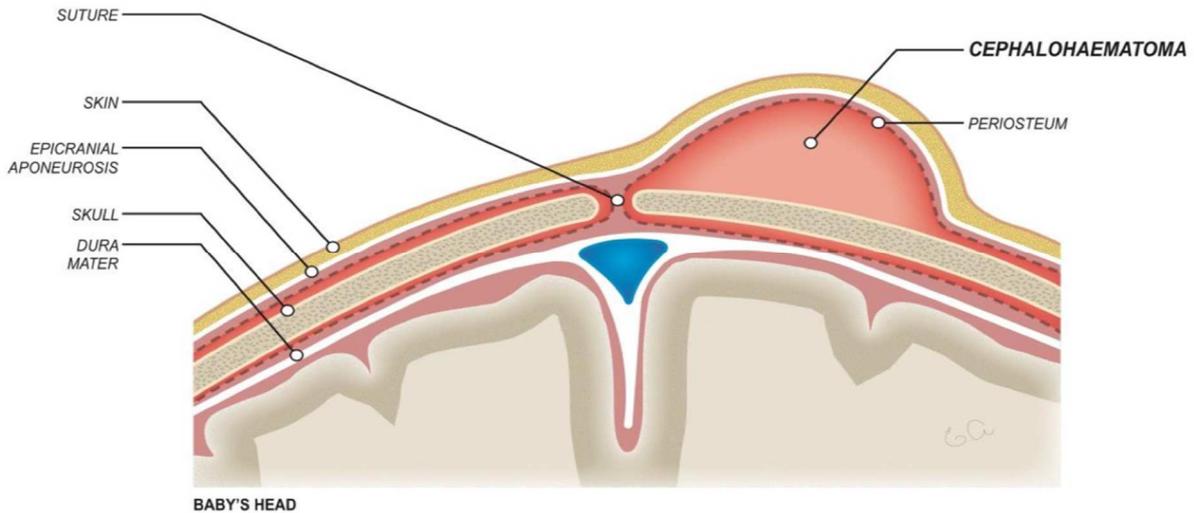
- A chignon is a swelling of the fetal scalp which is created inside the cup once the vacuum extractor is applied. The Chignon is what allows the cup to adhere to the fetal scalp.
- A chignon is most obvious directly following the cup's removal, but it should rapidly decrease in size to become a diffuse swelling within an hour of birth
- As with caput succedaneum a chignon usually resolves within 36 hours

Cephalohematoma

- This is caused by bleeding between the periosteum and the skull bone. It is a result of friction which may have been caused by cephalopelvic disproportion, a prolonged or a rapid labour.
- A cephalohematoma can appear following a normal vaginal or an assisted vaginal birth.
- A cephalohematoma can take several weeks to resolve

Characteristics of a cephalohematoma

- It is not usually present at birth
- It usually appears at 12 hours of age and tends to grow larger over the next few days
- **Never** crosses a suture line
- Does not pit on pressure
- A double cephalohematoma is always bilateral
- No treatment is necessary due to the blood being reabsorbed with the swelling subsides



Subgaleal haemorrhage (SGH)

- A rare but potentially lethal condition
- SGH is almost always secondary to a difficult or failed vacuum extraction
- SGH is caused from the accumulation of blood in the loose connective tissue between the periosteum and the epicranial aponeurosis
- A SGH may extend anteriorly to the orbital margins, posteriorly to the nuchal ridge and its lateral margins may blend with the temporal fascia
- Haemorrhage into the subgaleal space may occur over several hours following the birth and unless careful monitoring occurs, it may not become apparent until the haematoma is extensive
- The subaponeurotic space of an infant may hold up to 260ml blood

Characteristics of a SGH

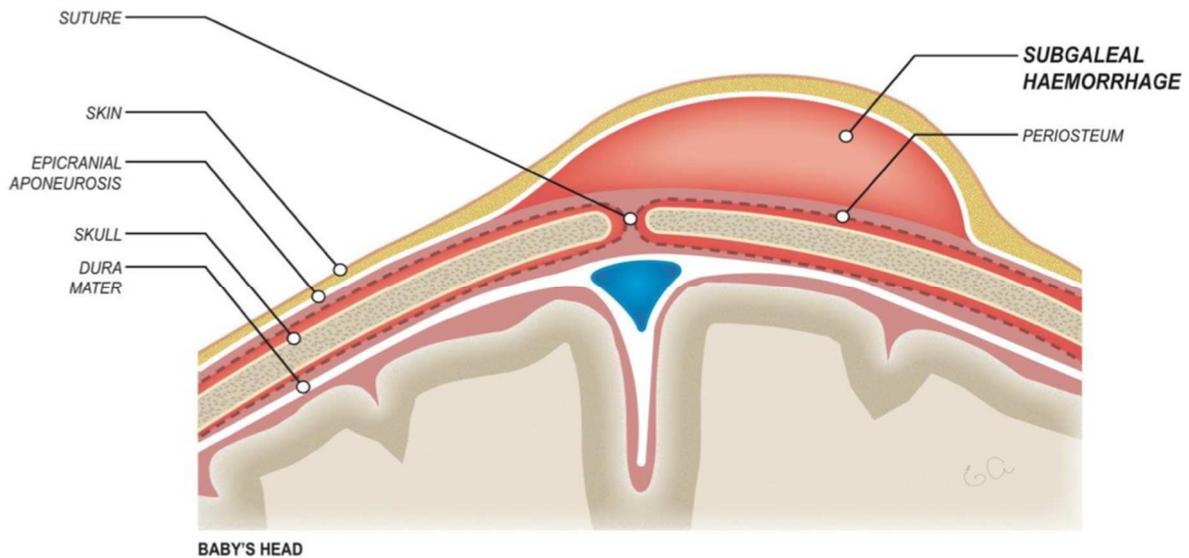
- The swelling is present at birth
- It increases in size
- The scalp is easy to indent upon palpation
- The swelling may shift independently when the head is repositioned
- SGH can cross suture lines
- The scalp swelling may be diffuse
- Hypotonia may be present

Some cases of SGH may be difficult to distinguish from caput succedaneum. In this instance hypotension and pallor are the dominant signs

The neonate may also have symptoms of hypovolemic shock:

- Pallor
- Hypotension
- Tachycardia
- Increased respiratory rate

If SGH is suspected, **urgent** paediatric review must be sought. This is a **life-threatening** condition



Intracranial haemorrhage (ICH)

- This should always be considered in the differential diagnosis if a neonate exhibits abnormal signs of behaviour following an assisted vaginal birth. An early diagnosis will lead to the prompt and effective treatment of the neonate.
- The clinical symptoms of ICH are variable, however neonates with ICH will always show neurological signs such as increased irritability, apnoea and convulsions

Signs of ICH include:

- Convulsions
- Lethargy
- Bulging anterior fontanelle
- Poor feeding - in ability to latch and fix
- Apnoea
- Bradycardia
- Shock

Practice Point

It is important to note these signs and symptoms may be delayed in onset for several hours following the birth. If an ICH is suspected urgent paediatric review must be sought.

Procedure:

Who: All babies born by assisted vaginal birth or by emergency caesarean section following a failed forceps/vacuum extraction.

1. Associate Clinical Midwife Manager (ACMM) to attend all assisted vaginal births on birthing suite (designated theatre midwife to attend all instrumental trials in theatre).
2. Paediatric support (SHO/Registrar or Consultant) in attendance
3. Paired cord blood to be collected at birth and lactates obtained
4. Vitamin K IM is recommended for all babies born by assisted vaginal birth unless contraindicated
5. No hats to be worn by neonate during observation period
6. Observations to occur in good light
7. Initial newborn examination to be undertaken and documented by the paediatrician in attendance
8. Level of surveillance required for newborn to be documented in care plan and handed over to the intrapartum midwife who is providing care for the woman and newborn in the immediate postpartum period. (see algorithm)
9. Responsibility for the observation of the newborn during the first hours of life and *before* transfer to the postnatal ward is with the LMC or intrapartum core midwife.
10. Responsibility for the observation of the newborn once transferred to the care of the postnatal ward is with the receiving midwifery and nursing staff. It must be clearly documented on the hand over tool that an assisted vaginal birth had taken place and the observations were taken at the required times and documented on the appropriate chart.
11. Newborns who require repeat lactates following birth to be taken to SCBU for capillary blood sampling.
12. If a newborn is transferred to SCBU the responsibility lies with the SCBU nursing staff receiving care of the baby and this should be handed over by the paediatric team and documented in the care plan.
13. Escalation immediately if any thresholds are met as per algorithm.

Communication with Parent/ Whānau

1. Clear explanation provided to parent/whānau on rationale for undertaking observations on their baby
2. Consent gained from parent/whānau. If consent not given this must be documented
3. Where possible observations to take place in the room with parent/whānau
4. Privacy of baby and whānau maintained in shared clinical space and at all times
5. Cultural consideration of handling the infant's head during the examination - if not sure check with parent/whānau
6. If at any stage during observation period the risk moves from low to intermediate or too high, clear communication to the parent/whānau, so they are informed of any change to the care plan

Surveillance of the newborn following assisted vaginal birth

Management of all babies following attempted or successful assisted vaginal birth:

- Births are attended by ACMM (designated theatre midwife in OT) and paediatric team on call
- Paired cord lactates to be taken from all babies at birth
- All babies should receive IM Vitamin K unless contraindicated
- No hats should be worn during the observation period
- Observations include heart rate, colour, perfusion, activity and examination of scalp, all in good light
- Pulse oximetry is recommended (intermittently) unless high risk when it will be continuous

Low Risk Surveillance

- Observations performed at birth, 1 hour and 4 hours of age
- Pulse oximetry at assessment times as this can enable early recognition of the onset of progressive tachycardia
- Observation chart to be used in clinical notes

Intermediate Risk Surveillance

- Paediatrics to be notified of intermediate risk level
- Observations performed at birth, 1,2,4,6,8, and 12 hours. Document on observation chart
- Pulse oximetry (continuous or at assessment times) as this can enable early recognition of the onset of progressive tachycardia
- Cord FBC or venous/capillary FBC. Consider need for group and hold
- Repeat lactate and pH at 4 hours

Escalation to High Risk surveillance (high clinical suspicion of SGH)

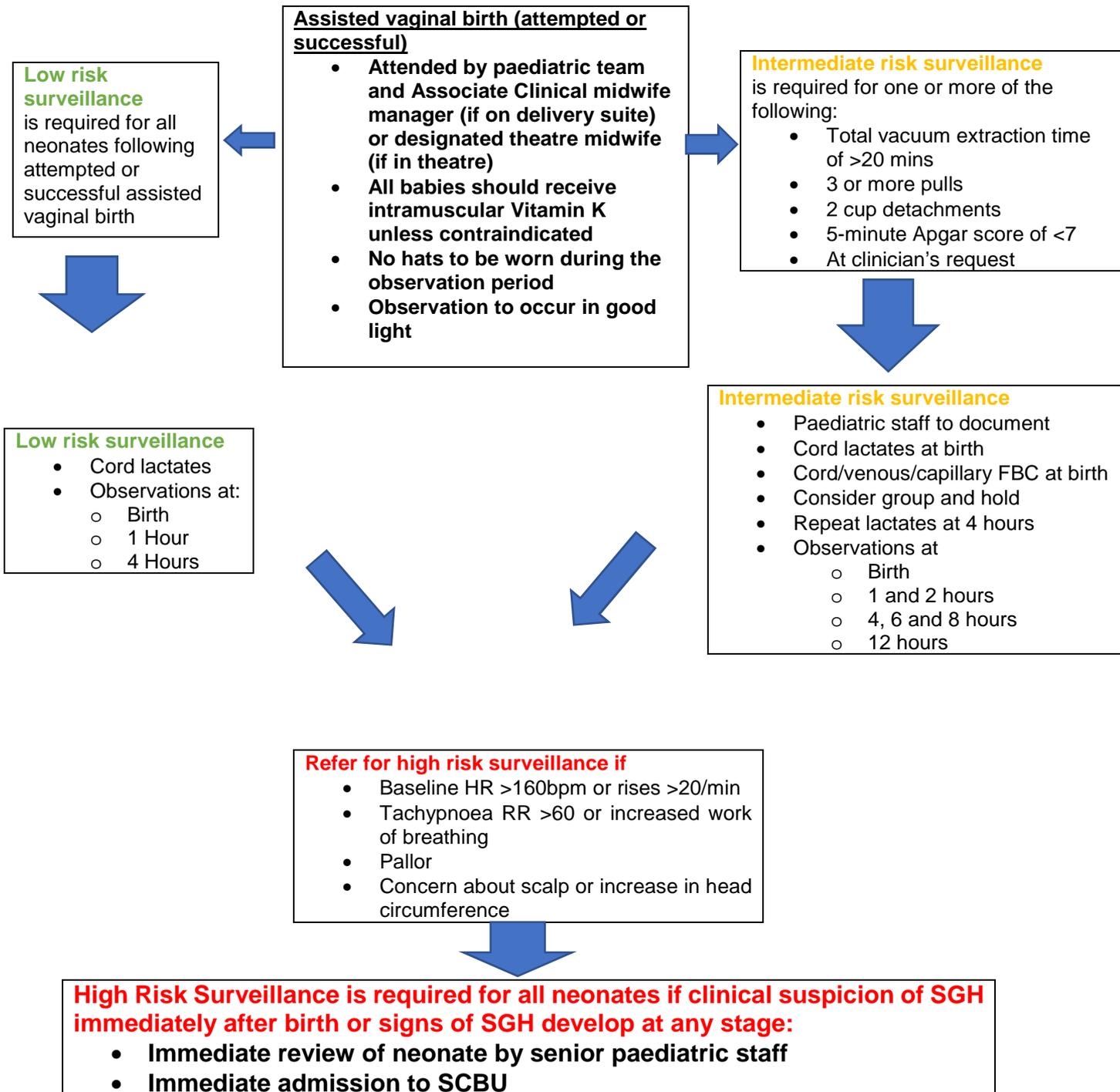
Signs of deterioration and need for escalation from Low to Intermediate surveillance to High Risk Surveillance is (and not limited to)

- Heart rate >160bpm or a rise of > 20bpm in the baseline
- Tachypnoea RR>60bpm or increased work of breathing
- Pallor
- Poor perfusion (central capillary refill >3 sec), Lactate > 3 mmol/L
- Concerns about scalp (boggy swelling, /large, diffuse, fluctuating mass that crosses sutures/peri-orbital oedema/displacement of ears /other concerns)
- Increased in head circumference
- Other concerns requiring urgent paediatric review by senior paediatric staff

High Risk surveillance (high clinical suspicion of SGH)

- Urgent review of the baby by senior paediatric staff
 - Confirmed suspicion of SGH: Immediate admission to SCBU
 - Confirmed SGH (diagnosis clinically confirmed): Immediate admission to SCBU and escalate care to Management of confirmed SGH

Algorithm for observations of the newborn following assisted vaginal birth



Documentation of surveillance of babies at risk of subgaleal haemorrhage (SGH)

Chart to be included in clinical notes for babies at risk of SGH

- For babies on **low risk surveillance** please record data in ALL column: birth, 1 and 4h of age
- For babies on **intermediate risk (INT-R)** surveillance please record data in ALL and INT-R columns 1, 2, 4, 6, 8 and 12 h of age.

Complete data or circle as appropriate per given time point. Organise paediatric review as indicated

	ALL/LOW	ALL/LOW	INT. RISK	ALL/LOW	INT. RISK	INT. RISK	INT. RISK	
Age	Birth (hh:mm)	1 h	2 h	4 h	6 h	8 h	12 h	Paediatric review if:
Heart rate (HR) (bpm)								HR >160 or rise of >20 bpm
Respiratory rate (RR)								Resp. Rate >60 bpm
Work of breathing increased	Y/N	Work of breathing increased						
Saturation %								Saturation < 92%
Colour	Normal Pale Pale ++	Pale or extremely pale ++						
Perfusion (capillary refill time)	<3 sec Or >3 sec	Perfusion > 3 sec						
Lactate (If Int. Risk at birth or if requested)	mmol/l			mmol/l				
Scalp	Normal Caput Ceph. H SGH	Abnormal (Exam urgently if SGH)						
Completed by: Name: Signature: Role:								
Referred to:								
At: hh:mm								
Outcome:								

INT-R = Intermediate Risk
Haemorrhage

Ceph. H = Cephalohaematoma

SGH = Subgaleal

References:

Broadbent, R., Goh, YY., & Bach, K. (2018). Neonatal Subgaleal Haemorrhage Practice Recommendation. New Zealand Newborn Clinical Network Clinical Reference Group.

Boo, NY., Foong, KW., Mahdy, ZA., Yong, SC., & Jaffar, R. (2005). Risk Factors Associated with Sub aponeurotic Haemorrhage in Full-term Infants Exposed to Vacuum Extraction. Br J Obstet Gynaecol 2005; 122(11): 1516-21

Colditz, M. L., Cartwright, D., & Colditz, P. (2015). Subgaleal haemorrhage in the newborn: A call for early diagnosis and aggressive management. Journal Paediatric Child Health, 516-21.

HVDHB. (2017). Maternity Services Annual Clinical Report 2016. Hutt Valley District Health Board.

RANZCOG. (2009). Prevention, detection and management of subgaleal haemorrhage in the newborn. RANZCOG.

Informed Consent

The right of a consumer to make an informed choice and give informed consent, including the right to refuse medical treatment, is enshrined in law and in the Code of Health and Disability Consumers' Rights in New Zealand. This means that a woman can choose to decline treatment, referral to another practitioner, or transfer of clinical responsibility. If this occurs follow the process map on page 18 of the Referral Guidelines (Ministry of Health, 2012).