VACUUM-ASSISTED DELIVERY

Prerequisites and Technique

Vacca Research

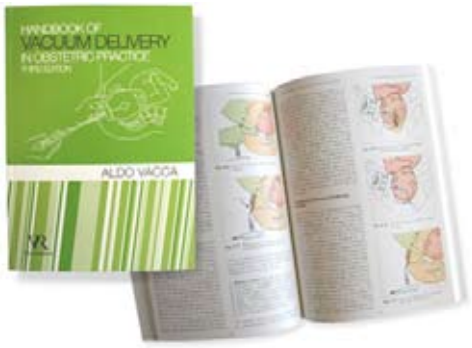
Introduction

This document is available for clinicians from the website www.vaccaresearch.com. It lists in order the prerequisites for safe and successful vacuum-assisted delivery (VAD).

Although it has been produced primarily as a handout for pre-reading in conjunction with the workshop: ***Masterclass – The Technique of Vacuum-Assisted Delivery***, the document also serves as a comprehensive summary of this method of assisted delivery. Clinicians who perform the procedure will find it useful as a practical guide for the conduct of VAD.

In addition, the document has been designed to serve as a self-directed learning tool for interested readers who may wish to broaden their knowledge of the subject. Additional information may be obtained from the *Handbook of Vacuum Delivery in Obstetric Practice* (HBVD) or the ***Choices with Childbirth CD*** (CWCB) by using the references that are provided at the end of each section of the document.

Reference Resources:



HBVD: Handbook of Vacuum Delivery in Obstetric Practice – 3rd edition

CWCB: Choices with Childbirth (2nd ed.) CD on Vacuum Assisted Delivery

The following resources are also available online at www.vaccaresearch.com through the link Clinician's Resources:

- ESSENTIAL PRE-READING FOR MASTERCLASS IN VAD.pdf
- HANDOUT– Prerequisites and Technique.pdf
- GENERAL KNOWLEDGE MCQ.pdf
- CASE STUDY.pdf
- HANDBOOK REVIEW QUESTIONS.pdf
- THE HISTORY OF VACUUM EXTRACTION –By Professor Tom Baskett.pdf
- A POEM ABOUT VAD –'It's always more posterior than you think'.pdf
- CHOICES WITH CHILDBIRTH GUIDE.pdf

The Operator

1. Adequate operator experience and training in vacuum delivery

The operator is a key determinant of the success of vacuum-assisted delivery and, conversely, unfavourable results that are attributed to the procedure are often due to the user's unfamiliarity either with the instrument or the basic rules governing its use. Users of vacuum devices should:

- understand the clinical and technical principles relevant to vacuum delivery eg determining the location of the flexion point.
- know when to choose a soft, anterior or posterior cup.
- know the technique for achieving a correct (flexing median) application of the cup.
- be adequately trained in the technique for standard and rotational vacuum delivery.
- be familiar with the correct method of traction and how to prevent cup detachment.
- be aware of the safety measures for the prevention of maternal and fetal injury.

Ref. HBVD p109: Operator training and classification
Ref. CWCB: see Vacuum Delivery Training Programs and Practice

2. Experience in the assessment and management of labour

To achieve consistently good results with the vacuum extractor the clinician's level of general obstetric experience and training in vacuum delivery should be appropriately matched to the requirements of the procedure. Practitioners should know how to select the patients for whom vacuum extraction is an appropriate method of assisted delivery and to make an assessment whether the procedure should be classified as a low risk or higher risk (trial) vacuum delivery for their individual level of experience.

Ref. HBVD p33: Assessing obstetric variables; p109: Operator experience and training
Ref. CWCB: see Operator Experience & Skills; Selection of Patients for Vacuum Delivery

Indications and Contraindications

3. Classification of indications for vacuum delivery

Standard indications (lower risk):

- Suspected fetal compromise (non-reassuring fetal status)
- Elective shortening of the second stage of labour for fetal or maternal reasons
- Arrest in the second stage of labour when the fetal head is stationed
  a. at the outlet of the pelvis (+4cm & +5cm) – fetal position usually OA
  b. at low pelvic stations (+2cm & +3cm) – position frequently oblique OA or OT
  c. in the mid cavity (for selected cases) (+0cm & +1cm) – frequently OT or OP

Moderate risk indications (" trial" of vacuum delivery):

- Suggestive evidence of fetal compromise (but not 'acute distress')
- Arrest in the second stage of labour associated with fetal malposition and where there is a suspicion of borderline disproportion (large fetus relative to maternal size)
- Arrest of descent of the head combined with non-reassuring fetal status
- True maternal exhaustion (should be distinguished from psychological exhaustion)
- Gestation <36 weeks and >34weeks

Relative contraindications:

- Severe non-reassuring fetal status ('acute fetal distress') with station of the head above the level of the pelvic floor i.e. fetal scalp not visible
- Delivery of the second twin when the head has not quite engaged or the cervix has reformed
- Delivery of a fetus presenting by the brow (in selected cases)
- Prolapse of the umbilical cord with fetal compromise when the cervix is completely dilated and the station is mid cavity

Contraindications

- Unengaged fetal head
- Incompletely dilated cervix
- True cephalo-pelvic disproportion
- Breech and face presentations and most brow presentations
- Preterm gestation (<34 weeks)
- High likelihood of fetal coagulation disorders

Ref. HBVD p31: Indications and Contraindications
Ref. CWCB: see Indications and Contraindications

Selection of patients

4. Steps in the selection process for vacuum delivery

Patients suitable for vacuum delivery may be selected on the basis of the history of the pregnancy and labour, assessment of the conditions of the fetus and mother and evaluation of the abdominal and vaginal findings.

Review of the history of the pregnancy and the strength of the uterine contractions

- Checking for high risk obstetric and general medical factors
- Assessing the frequency and strength of uterine contractions and noting any contraindications to the use of oxytocin infusion.

Assessment of maternal condition

- Evaluating the physical and psychological state of the mother and her ability to participate actively in the birth
- Reducing discomfort by administering appropriate analgesia and relieving apprehension by explanation of the reasons for the procedure
- Checking the maternal blood pressure, pulse rate, temperature and fluid balance.

Assessment of fetal well-being

- Noting the colour of the amniotic fluid for the presence of meconium or blood
- Assessing the fetal heart rate pattern by auscultation, continuous electronic monitoring or fetal pulse oximetry. If fetal compromise is suspected, scalp blood sampling for pH or lactate estimation maybe helpful to establish the correct diagnosis.

Abdominal examination

- Categorising the size of the baby into small, average or large size
- Estimating the number of "fifths" of head palpable suprapubically
- Identifying the position of the fetal back and sinciput (using portable u/s if available)
- Looking for distension of the lower uterine segment or formation of a retraction ring, suggesting that the labour may have become obstructed

Vaginal examination

- Estimating dilatation of the cervix and station of the presenting part
- Grading the degree of moulding as slight, moderate or extensive
- Establishing the position of the head and the extent of deflexion and asynclitism
- Locating the position of the flexion point and calculating the cup insertion distance
- Estimating the capacity of the pelvis relative to the size of the baby

Ref. HBVD p40: Selection of patients for vacuum delivery
Ref. CWCB: see Selection of patients for vacuum delivery

5. A method of assessing the clinical findings for the selection of patients suitable for vacuum delivery

Even when a valid indication for expediting the birth of the baby exists, there are a number of other factors that must be considered before vacuum delivery is attempted because they may influence the outcome. These have been grouped into "primary" and "associated" obstetric factors.

Assessing primary obstetric factors for vacuum delivery

- Arrest of descent (delay, failure to progress)
- Station, level of head, visibility of head. (outlet, low, mid cavity)
- Fetal compromise (suspected, probable)
- Moulding (mild, moderate, extensive)
- Position of the head (OA<450, OA>450, OT, OP), deflexion, asynclitism
- Level of experience of operator

Assessing associated obstetric factors for vacuum delivery

- Uterine contractions (beware "uterine exhaustion": consider use of oxytocin)
- Maternal condition – expulsive powers (beware "maternal exhaustion")
- Epidural analgesia – diminished/abolished urge to push
- Dilatation of the cervix
- Progress in the first stage of labour
- Size of the fetus – average or large
- Clinical signs suggestive of obstructed labour
- Previous surgery to the uterus

Ref. HBVD p40: Primary and secondary selection variables
Ref. CWCB: see Primary and secondary selection variables

6. Classification of vacuum deliveries into lower and higher risk categories.

Careful evaluation of the clinical findings will make it possible to select those patients who are suitable for vacuum extraction, a few who may be suitable for a "trial" of vacuum delivery provided strict criteria have been met, and those patients in whom vacuum delivery is contraindicated. It should also be possible to grade the procedures according to the level of technical skills required in each case. For example, if you were the operator how would you grade the following obstetric situations with regard to risk to the fetus from vacuum delivery? (low = l; moderate = m; high = h)

Ref. HBVD p42: Selection of patients (Table 3.5)
Ref. CWCB: see Selection of Patients for Vacuum Delivery

STATION	ARREST	FETAL STATUS	MOULDING	POSITION	RISK
Outlet	Yes	Reassuring	Moderate	OA	l / m / h
Outlet	Yes	Non-reassuring	Advanced	OA	l / m / h
Outlet	Yes	Reassuring	Moderate	OP	l / m / h

STATION	ARREST	FETAL STATUS	MOULDING	POSITION	RISK
Low	Yes	Reassuring	Moderate	OA<450	l / m / h
Low	Yes	Non-reassuring	Moderate	OT	l / m / h
Low	Yes	Reassuring	Moderate	OP	l / m / h

STATION	ARREST	FETAL STATUS	MOULDING	POSITION	RISK
Mid	Yes	Reassuring	Advanced	OA<450	l / m / h
Mid	Yes	Reassuring	Moderate	OP	l / m / h
Mid	Yes	Non-reassuring	Moderate	OT	l / m / h

Preliminaries

7. Explanation to the mother of the clinical concern and of the options that are available for delivery

The mother should be kept fully informed by the birth attendant about progress of the labour and the condition of her baby and be provided with explanations for any interventions or treatments that may be prescribed. Development of a good rapport between mother and obstetrician will be helpful if, later in the labour, vacuum delivery becomes necessary.

Ref. HBVD p44: Communication between the Mother and Operator
Ref. CWCB: Communication between the Mother and Operator

8. Informing the mother, explanation of procedure and obtaining consent

A brief description of vacuum extraction in non-technical terms should be offered to the mother and her partner using a fetal manikin to explain clinical findings such as malposition or deflexion and to demonstrate the basic principles. She should be informed that the birth will result largely from her own expulsive powers and that the obstetrician's role with the vacuum extractor will be complementary to her efforts. She should be informed that the duration of the procedure is usually less than 15 minutes and will not last longer than 20 minutes unless delivery is imminent and that, if any difficulty is encountered, delivery will be completed by cesarean section in the interests of the baby.

Potential risks of the procedure should be outlined to the mother in plain language and care taken that the information provided is balanced and un-emotive so that the mother's anxiety level is not unnecessarily increased.

Ref. HBVD p48, p44 Informing mother; p95: Neonatal effects of vacuum extraction
Ref. CWCB: see Communication between Mother and Operator

9. Availability of multidisciplinary personnel

Optimal results with vacuum extraction for mother and baby may be expected when the operator is assisted by colleagues from other health-care disciplines (e.g. midwives, anaesthetists, neonatal paediatricians) who are able to take responsibility for the relief of discomfort and for providing general support to the mother and who are able to perform skilled resuscitation of the newborn infant.

10. Position of the mother & provision of suitable analgesia

The mother should be assisted into a modified lithotomy position and a wedge placed under one buttock to produce some lateral tilt. The buttocks should extend to or slightly beyond the end of the bed to allow traction to be directed downwards towards the floor. The mother should be encouraged to practise pushing in this position during the preparations for vacuum delivery.

Ref. HBVD p44: Position of the mother
Ref. CWCB: see Position of the mother

Perineal infiltration with a local anaesthetic agent will suffice for the majority of vacuum deliveries, but some operators prefer to use pudendal block. If epidural analgesia has been administered, it is important that the operator knows how to compensate for any diminution of the expulsion sensation and that the mother be instructed in the technique of pushing effectively with each contraction. General anaesthesia is contraindicated for vacuum extraction.

Ref. HBVD p43: Analgesia
Ref. CWCB: see Analgesia

Technique of vacuum delivery – *Locating the flexion point, applying the cup*

11. Confirmation of the location of the flexion point

In order to achieve correct (flexing median) applications of the vacuum cup in all positions of the fetal head, the operator must know the location of the flexion point and be able to place the centre of the cup precisely over that point. The flexion point may be located during vaginal examination by identifying the posterior fontanelle in the usual manner and then moving the finger forward (toward the anterior fontanelle) along the sagittal suture for a distance of approximately 3cm (STEP 1).

Ref. HBVD p17: Locating the flexion point
Ref. CWCB: see Locating the flexion point; See CWCB media code: M0324

For practical purposes, the cup insertion distance can be estimated with sufficient accuracy by placing the tip of the middle finger on the flexion point with the palmar surface uppermost and observing which part of the dorsal aspect of the finger is resting on the maternal posterior fourchette of the perineum. In the majority of people the distance from the tip of the middle finger to the proximal interphalangeal joint is approximately 5-6cm, and to the carpo-metacarpal joint (knuckle) is about 10-11cm. In this way it is possible to determine how far the centre of the cup should be inserted to be correctly applied over the flexion point. Operators should be aware that because the flexion point is situated 3cm from the posterior fontanelle its location will be on or near the mother's midline pelvic axis regardless of the position of the fetal head (see HBVD Fig 2.20). These observations may be made during the vaginal examination conducted as part of the assessment of labour.

Ref. HBVD p17: Locating the flexion point –calculating the cup insertion distance
Ref. CWCB: see Locating the flexion point; See CWCB media code: M0324

12. Selection of an appropriate vacuum cup

In all mid and most low cavity vacuum deliveries the flexion point on the fetal scalp is situated within the lower birth canal several centimeters away from the introitus and some manoeuvring of the cup will be necessary to achieve a correct application. Manoeuvrability of vacuum cups with dome attached handles (the soft cups) or tubing (the Malmstrom-design cups and anterior cups) is restricted by the handles or tubing making contact with labial or perineal tissues. Manoeuvrability of the posterior cup, on the other hand, is not restricted by the maternal soft tissues because the suction tube and traction system lie in the same plane as the body of the cup. This unique feature allows the posterior cup to be inserted through the introitus and be manoeuvred toward and over the flexion point.

For these reasons use of soft cups, Malmstrom-type cups and anterior design cups should be restricted to outlet procedures and non-rotational low vacuum extractions. For OP and OT rotational deliveries one of the posterior design cups should be selected provided the operator has been trained in its use.

Ref. HBVD p26, p48: Choice of vacuum cup; p24: Manoeuvrability of vacuum cups
Ref. CWCB: see Choice of vacuum cups;

13. Correct application of the vacuum cup to the fetal head

When a suitable vacuum cup has been selected, the physician smears the outside of the cup only with a thin layer of obstetric cream before inserting the cup gently through the introitus (STEP 2). The cup should be pressed lightly against the fetal head and manoeuvred until its centre lies over the flexion point (STEP 3). In low anterior positions, while one hand holds the cup in position, the index finger of the other hand is swept around the rim of the cup to check that there is no maternal tissue trapped between cup and scalp. Because it is usually impossible to reach the distal (leading) edge of a correctly placed cup in occipitotransverse and posterior positions, and because vigorous attempts to do so may dislodge the cup, operators should check only around the cup's rim that is reachable.

Operators can confirm that the cup is correctly positioned over the flexion point when a distance of three centimeters can be palpated between the anterior fontanelle and the nearest part of the cup and when the sagittal suture passes beneath the centre of the cup. This extrapolation is possible because the vacuum cups in common use have an external diameter of approximately six centimeters and the distance between fontanelles is about nine centimeters.

A vacuum cup (the Kiwi OmniCup) is available which has distance marks printed on the suction tube that assist the operator to know when the cup has been manoeuvred the calculated insertion distance to be over or close to the flexion point (see HBVD p4, Fig 1.10).

Ref. HBVD p22: Correct cup application; p50 Manoeuvring the cup
Ref. CWCB: see Application of the cup; see Applying the posterior cup

Technique of vacuum delivery – *Traction procedure*

14. Achieving the recommended vacuum pressure

The operating vacuum pressures for the majority of cups range between 60-80kPa (450 and 600mmHg). The recommendation that up to ten minutes be allowed for a chignon to form before applying traction should no longer be followed since it has been shown that an effective artificial caput succedaneum or chignon is formed within two minutes of creating the vacuum and that rapid induction of the vacuum does not increase the risk of injury to the fetal scalp. When the operator is satisfied that the cup has been applied correctly to the fetal head, the desired vacuum pressure may be achieved in one step (STEP 4) and traction commenced after one minute, usually with the start of the next contraction.

Ref. HBVD p50: Inducing and maintaining the vacuum
Ref. CWCB: see Inducing and maintaining the vacuum; see Inducing the vacuum in Technique for the use of posterior cups.

15. Method of traction

Attachment of the cup is most effective when the direction of pull is perpendicular to the cup. This is usually possible for low extractions but for rotational deliveries oblique traction is often necessary initially to keep the axis of the fetal head in line with the pelvic axis. Oblique traction, however, predisposes to cup detachment that may result in injury to the fetal scalp. To counteract this tendency, traction should be a two-handed exercise with the right hand holding the traction handle and pulling in the direction of descent. The thumb of the non-pulling hand presses against the dome of the cup and helps to prevent complete detachment from the scalp while the index finger of the same hand rests on the scalp in front of the cup and monitors descent of the head. This finger-thumb position of the non-pulling hand should be maintained as long as traction is applied, especially if the direction of pull is oblique, and until the head has crowned (STEP 5).

Traction is applied at the onset of a contraction and is maintained smoothly for the duration of the contraction as long as the mother is pushing. The operator should offer constant encouragement to the mother during expulsion and should inform her of the progress being made. Traction should not be applied if the mother ceases to push and should not be continued in the interval between contractions even to 'maintain station'. If the muscles of the pelvic floor retract the fetal head when the contraction passes let it retract. The head will descend again to the lowest level reached at the start of the subsequent contraction. During the interval the fetal heart should be monitored regularly. For most vacuum extractions performed under perineal infiltration analgesia, the first pull should cause flexion of the head and some descent. By the end of the second pull the fetal head should have descended to the pelvic floor and be visible with contractions and with the third pull the head should be on the perineum. If epidural analgesia has been administered, however, one or two gentle pulls initially may help the mother to become accustomed to pushing effectively in the absence of sensation. In addition, if vacuum delivery is attempted without performing an episiotomy, undue haste and traction force should be avoided and one or two extra tractions should be allowed for the perineum to distend over the head as is practised with a normal delivery. Most cup detachments occur when the cup has descended to the level of the vaginal introitus.

The '3 + 3' pulls rule

Furthermore, recent work has shown that, in the majority of nulliparous mothers, higher levels of traction forces are experienced during the pelvic floor and perineal phases of a vacuum extraction than during the descent phase. For these reasons vacuum-assisted delivery should be considered as a two-phase procedure, a ***descent phase*** and a ***pelvic floor & perineal phase***. To cater for these recent findings and changes of obstetric practice, the author recommends allowing three pulls for the descent phase and three pulls for the pelvic floor and perineal phase. This has been labelled the '3 + 3 pulls rule'.

Traction should be discontinued between contractions or if an audible 'hiss' is heard signalling loss of vacuum and imminent detachment of the cup. There is no evidence that the practice of reducing the suction pressure between contractions is beneficial for the fetal scalp or that maintaining the suction is harmful. After delivery of the head, the vacuum is released, the cup eased off the scalp and the birth completed in the normal manner.

Ref. HBVD p51: Method of traction; p84, p88: The descent and pelvic floor phases
Ref. CWCB: see Method of traction; see Traction and see Autorotation in Technique for the use of posterior cups

Effects on the Newborn Infant

16. Clinically significant and non-significant neonatal effects

The current Cochrane Systematic Review of trials comparing soft and rigid vacuum cups concluded that soft cups are significantly more likely to fail to achieve a vaginal delivery but they are associated with less scalp injury. However, examination of the data in the systematic review show that soft cups cause fewer cosmetic and non-clinically significant effects – bruising, scalp abrasions and cephalhaematomas. All of these lesions are transient and do not pose any threat to the well-being of the infant. At present there are insufficient data to draw firm conclusions about the relative merits of different vacuum cups to potentially life-threatening outcomes such as subgaleal haemorrhage (SGH) and intracranial haemorrhage (ICH) but numerous observational reports in the literature suggest that soft cups do not offer any benefits over rigid cups for the prevention of these more serious injuries.

Meta-analysis of randomised trials in the current Cochrane Review have demonstrated that the vacuum extractor is significantly more likely to fail to deliver the baby than forceps but is not associated with significantly more cephalhaematomas and retinal haemorrhages than the forceps. Clinically significant neonatal morbidity in the studies was rare. Observational data, however, suggest that SGH is much more common with vacuum extraction than forceps delivery but that the occurrence of ICH is not different between the two instruments. It is useful, therefore, for counseling and auditing purposes to classify neonatal outcomes according to their clinical rather than statistical significance since visible scalp effects are a source of considerable anxiety for parents and caregivers. A practical classification of neonatal effects of VAD is suggested below.

Classification of the Effects on the Neonate

Cosmetic effects

- Chignon or artificial caput succedaneum
- Cup discolouration or bruising of the scalp

Clinically non-significant injuries

- Bruising and superficial scalp abrasions
- Cephalhaematoma
- Retinal haemorrhage

Clinically significant injuries

- Subgaleal (subaponeurotic) haemorrhage
- Intracranial haemorrhage
- Skull fracture

Indirect and coincidental injuries

- Brachial plexus injury
- Fracture of the clavicle or humerus

Ref. HBVD: p95:Effects of vacuum extraction on the infant
Ref. CWCB: see Effects of vacuum extraction on the infant

Effects on the Mother

17. Genital tract and perineal injury and episiotomy

Systematic reviews of vacuum extraction and forceps delivery have consistently reported more anal sphincter damage and ano-rectal injury with the forceps. Furthermore the risk of damage to the sphincter is compounded if failure of vacuum extraction is followed by attempted by forceps delivery.

Damage to the sphincter muscles of the anus during childbirth is regarded as a major predisposing factor for the subsequent development of bowel dysfunction, leading some investigators to conclude that vacuum extraction may offer some protection against the development of later faecal incontinence. However, a five-year follow up study of a cohort of women delivered by forceps or vacuum extractor reported no significant differences between the instruments in terms of either bowel or urinary dysfunction. On the other hand in a twelve year longitudinal study reported by MacArthur et al (BJOG 2011;118:1001-07) the risk of long term faecal incontinence was significantly higher after having had one or more forceps deliveries but there was no increased risk by vacuum extraction.

Evidence has accumulated that liberal use of episiotomy in normal birth does not necessarily prevent severe vaginal or perineal trauma and as a result a restrictive policy for the use of episiotomy is now being advocated. For operative vaginal delivery, however, it is not clear whether episiotomy is preferable to lacerations that may otherwise be incurred in terms of difficulty of repair. Recent evidence has demonstrated that midline episiotomy has been significantly associated with higher rates of severe perineal trauma compared to mediolateral episiotomy. It would appear to be preferable, therefore, to perform mediolateral episiotomy as the method of choice when used in conjunction with instrumental delivery.

Ref. HBVD: p105:Effects of vacuum extraction on the mother
Ref. CWCB: see Effects of vacuum extraction on the mother

Safety measures

18. Strict adherence to safety measures

Safety of vacuum extraction depends on careful consideration of and strict adherence to a number of safety factors, several of which may be evaluated prior to the procedure, many during the procedure itself and a few after vacuum extraction has been completed.

Before vacuum delivery

- Experienced operator who is skilled in vacuum delivery
- Completely dilated cervix
- Classification of indications into lower and higher risk groups
- Classification of procedure according to station – outlet, low or mid
- Classification according to rotation – OA<450, OA>450, OT or OP
- Classification according to degree of difficulty – standard or “trial” vacuum delivery
- Recognition of borderline feto-pelvic relationship and true CPD
- Consideration of whether caesarean delivery might be a safer option

During vacuum delivery

- Strong uterine contractions – consider use of oxytocin
- Maternal cooperation and effective maternal pushing
- Appropriate analgesia - compensate for loss of sensation from epidural analgesia
- Appropriate choice of vacuum cup – soft, anterior or posterior cup
- Flexing median application of the cup
- Correct method of traction – avoid detachment of vacuum cup
- Limitation on the number of pulls and the duration of the procedure
- Descent with each contraction – cease if no descent or if difficulty occurs
- Reassess progress after each traction – if in doubt, stop and do caesarean
- Presence of neonatal paediatric attendant

After vacuum delivery

- Examination of fetal scalp soon after delivery and at regular intervals
- Early recognition and treatment of subgaleal haemorrhage
- Anticipate parental anxiety of the effects of vacuum delivery
- Consult neonatologist if there are concerns about the condition of the infant

Ref. HBVD p111: Safety measures
Ref. CWCB: see Safety measures, Training and Practice

19. Post–vacuum delivery review

- Completion of suitable vacuum delivery data form
- Check site of cup application – for scalp effects and for educational purposes
- Review the vacuum delivery with the mother and answer any questions she may ask
- Arrange follow-up appointments for all infants with scalp lesions and for mothers with significant genital tract injuries

Ref. HBVD p55: Recording information about the procedure
Ref. CWCB: see After the baby is born; see After the delivery; Recording the information

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