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Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board

Assisted Vaginal Birth

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CHANGE HISTORY

Version	Date	Author Job Title	Reasoning
2	July 2023	Caleb Igbenahi	update

AUTHORSHIP, RESPONSIBILITY AND REVIEW

Author	Caleb Igbenahi	Ratification Date	August 2024
Job Title	Obstetric Consultant	Review Date	August 2027

Disclaimer

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Minor Amendments

If a minor change is required to the document, which does not require a full review please identify the change below and update the version number.

Type of change	Why change made	Page number	Date of change	Version 1 to 1.1	Name of responsible person
New Guideline under CTMUHB	Updated document	All	New		Raweya Al-Dabbagh
	Updated	All	August 2024	1.1 to2	Mr Caleb Igbenehi

Equality Impact Assessment Statement

This procedure has been subject to a full equality assessment and no impact has been identified.

Related Guidelines

- Fetal Heart Monitoring and Interpretation
- Procedure for checking Swabs, Needles and Instruments.
- Venous thromboprophylaxis

Contents

Contents

1. Definition

- An assisted vaginal birth includes the use of forceps or a vacuum extractor. It aims to mimic spontaneous vaginal birth, and shorten the second stage of labour thereby expediting birth, with a minimum of maternal or neonatal morbidity.
- In the UK between 10% and 15% of all women give birth by assisted vaginal birth.

2. Rationale

- The risk of morbidity during assisted vaginal birth should be minimized by improving clinical care and ensuring safety when it is carried out and, where morbidity occurs, to minimise the likelihood of serious harm while supporting and maximising maternal choice.

- Obstetricians, midwives and neonatologists should be aware that serious rare complications, such as subgaleal haemorrhage, intracranial haemorrhage, skull fracture and spinal cord injury, can result in perinatal death and that these complications are more likely to occur with midpelvic, rotational and failed attempts at assisted vaginal birth

- Vacuum and forceps birth can be associated with significant complications, both maternal and foetal. Maternal deaths have been described in association with tearing of the cervix after using vacuum extractor and further maternal death has been described following uterine rupture in association with forceps birth.
- Vacuum and forceps birth are associated with a higher incidence of episiotomy, pelvic floor tearing, levator ani avulsion and

obstetric anal sphincter injury (OASI) than spontaneous vaginal birth

- These risks should be balanced with the risks of performing a Caesarean birth during the second stage of labour.

3. Aims

- To achieve safe outcome for the mother and baby
- To avoid unnecessary delay
- To avoid unnecessary interventions
- To avoid difficult assisted births
- To ensure the right procedure is followed in the right place by the right person

Assisted vaginal birth rates can be reduced by:-

- Women experiencing straightforward pregnancy planning birth in midwife–led settings.
- Use of upright or lateral positions in second stage of labour
- Delayed pushing in women with epidurals can reduce rotational and mid cavity assisted birth

Epidural analgesia and assisted vaginal birth:

- Epidural analgesia may increase the need for assisted vaginal birth although this is less likely with newer anaesthetic techniques
- Epidural analgesia in the latent phase of labour compared to the active phase of labour does not increase the risk of assisted vaginal birth
- Encourage women using epidural analgesia to adopt lying down lateral positions rather than upright positions in the second stage of labour as this increases the rate of spontaneous vaginal birth

- Do not routinely discontinue epidural analgesia during pushing as this increases the woman's pain with no evidence of a reduction in the incidence of assisted vaginal birth
- There is insufficient evidence to recommend routine oxytocin augmentation for women with epidural analgesia as a strategy to reduce the incidence of assisted vaginal birth

4. Classifications for assisted vaginal birth

Outlet:

- Foetal scalp visible without separating the labia
- Foetal skull has reached the pelvic floor
- Sagittal suture is in the anterior-posterior diameter or right or left occiput anterior or posterior position (rotation does not exceed 45 degrees)
- Foetal head is at or on the perineum.

Low:

- Fetal skull is at station+2 cm, but not on the perineum
- Two subdivisions:
  1. Non-rotational≤45°
  2. Rotational>45

Mid

- Foetal head is no more than 1/5th palpable per abdomen
- Leading point of the skull is above station plus 2cm but not above the ischial spines.
- Two subdivisions:
  1.Non-rotational≤45°
  2.Rotational>45

5. Indications for Assisted Vaginal Birth

No indication is absolute and clinical judgment is required in all situations

Foetal:

- Suspected fetal compromise (cardiotocography pathological, abnormal fetal blood sampling result, thick meconium)

Maternal

- Nulliparous women: Birth would be expected to take place within 3 hours from the start of the **active** second stage. With an epidural women may have a passive stage for up to 2 hours after full dilatation before commencing active pushing. (NICE NG235, Sept 23)
- Multiparous women: Birth would be expected to take place within 2 hours from the start of the **active** second stage. With an epidural women may have a passive stage of up to 1 hour after full dilatation before commencing active pushing. (NICE NG235, Sept 23)
- Maternal fatigue /exhaustion.
- Medical indications to avoid Valsalva manoeuvre (e.g. Cardiac disease class 3 and 4, hypertensive crises, myasthenia gravis, spinal cord injury patients at risk of autonomic dysreflexia, proliferative retinopathy).
- Forceps can be used for the after coming head of the breech and in situations where maternal effort is impossible or contraindicated

6. Contraindications for assisted vaginal birth:

Forceps and vacuum extraction are contraindicated when:

- Before full dilatation of the cervix.
- Uncertain fetal head position. (Request senior input, think of USS as an aid)
- Fetal head station above ischial spines.
- Mid-cavity Rotational / Instrumental delivery where some difficulty is anticipated is not recommended in presence of suspected fetal compromise

6a- Relative contraindications: (Check antenatal care plan and discuss with Consultant)

- Suspected fetal bleeding disorders (alloimmune thrombocytopenia) is relative contraindications to assisted vaginal birth.

However, there may be considerable risks if the fetal head has to be delivered abdominally from deep in the pelvis at a second stage caesarean section. Experienced obstetricians should be involved in the decision-making for exceptional indication and, ideally, a discussion will have taken place and be documented in advance of labour.

A low forceps may be acceptable for assisted vaginal birth with suspected fetal bleeding disorders, but vacuum extraction should be avoided.

- Haemophillia (male infants)
- Fetal predisposition to fracture (osteogenesis imperfect) is relative contraindications to assisted vaginal birth.
- Blood borne viral infections in the mother are not an absolute contraindication to assisted vaginal birth.

However, it is sensible to avoid difficult assisted vaginal birth where there is an increased chance of fetal abrasion or scalp trauma, as it is to avoid fetal scalp electrodes or blood sampling during labour.

6b- Contraindications specific to Ventouse (Vacuum extraction)

- The vacuum extractor is contraindicated with a face presentation.
- Vacuum birth should be avoided below 32+0 weeks of gestation.

The use of vacuum extraction is not recommended because of the susceptibility of the preterm infant to cephalohematomas, intracranial haemorrhage, subgaleal haemorrhage and neonatal jaundice. It also should be used with caution between 32+0 and 36+0 weeks of gestation.

- Suspected fetal bleeding disorders (alloimmune thrombocytopenia).
- Vacuum extraction is not contraindicated following a fetal blood sampling procedure or application of a fetal scalp electrode

7. Higher rates of unsuccessful assisted vaginal birth are associated with:

- Maternal BMI greater than 30
- Short maternal stature
- Estimated fetal weight of greater than 4 kg or a clinically big baby
- Head circumference above the 95th percentile
- Occipito–posterior position
- Midpelvic birth or when one-fifth of the head is palpable per abdomen.

Assisted vaginal births that have a higher rate of being unsuccessful should be considered a 'trial' and conducted in a place where immediate recourse to category one caesarean birth can be undertaken.

8. Management of Assisted Vaginal Birth

- Careful assessment of the clinical situation
- Clear communication with the mother and healthcare personnel
- Competent operator either performing or supervising the procedure
- Ultrasound assessment of the fetal head position prior to assisted vaginal birth is recommended where uncertainty exists following clinical examination.
- There is insufficient evidence to recommend the routine use of abdominal or perineal ultrasound for assessment of the station, flexion and descent of the fetal head in the second stage of labour.
- When midpelvic or rotational birth is indicated, the risks and benefits of assisted vaginal birth should be compared with the risks and benefits of second stage caesarean birth for the given circumstances and skills of the operator. Written consent should be obtained for a trial of assisted vaginal birth in an operating theatre.

9. Prerequisites for Assisted vaginal birth

Full abdominal and vaginal examination;

- ✓ Head is ≤1/5th palpable per abdomen ✓ Vertex presentation.
- ✓ Cervix is fully dilated and the membranes ruptured.
- ✓ Exact position of the head can be determined so proper placement of the instrument can be achieved. Use of ultrasound may be a valuable assessment tool.
- ✓ Assessment of caput and moulding, no more than moderate (or+2)
- ✓ Pelvis is deemed adequate.

Preparation of mother

- Clear explanation should be given to the woman around the benefits, risks, and alternatives and ensure informed consent obtained. Appropriate analgesia is in place for mid cavity rotational births. This will usually be a regional block.
- A pudendal block may be appropriate for low or outlet birth, particularly in the context of urgent birth. Consider anaesthetic support if birth is planned to take place in room.
- Maternal Bladder has been emptied recently.
- Indwelling catheter should be removed or balloon deflated.
- Aseptic technique
- A single prophylactic dose of intravenous amoxicillin and clavulanic acid should be recommended following assisted vaginal birth as it significantly reduces confirmed or suspected maternal infection.

Preparation of the staff

- Operator has the knowledge, experience and skill necessary
- Adequate facilities are available (equipment, bed, lighting) and access to an operating theatre
- Backup plan especially for midpelvic births, theatre facilities should be available to allow a caesarean birth to be performed without delay
- Anticipation of complications that may arise
- Personnel present who are trained in neonatal resuscitation

Consent:

- Women should be informed in the antenatal period about assisted vaginal birth, especially during their first pregnancy

- For assisted births in the birthing room, verbal consent should be obtained before assisted vaginal birth and the discussion documented in the notes, if circumstances allow written consent may also be obtained.

- The Woman's birth plan, including any preferences or objections to a particular instrument, should be taken into account and discussed. Consideration should be given to the fact that women may be exhausted, in pain or affected by medication but this does not override a woman's decision-making. The principles of obtaining valid consent during labour should be followed. Information provided in labour should be given between contractions. The ability to present risk-based information in a time-sensitive manner appropriate to the clinical circumstances is essential in order to achieve informed consent. Obstetricians must document their assessment findings, reasons for proceeding to an assisted vaginal birth and that consent has been given

- Written consent should be obtained for a trial of assisted vaginal birth in an operating theatre

10. Choice of instrument

- The operator should choose the instrument most appropriate to the clinical circumstances and their level of skills. Forceps and vacuum extractions are associated with different benefits and risks, unsuccessful birth is more likely with vacuum extraction but maternal perineal trauma is more likely with forceps.
- The options available for rotational birth include: Kielland Forceps, manual rotation followed by direct traction forceps or rotational vacuum extraction. Rotational forceps births should be performed by experienced operators.

11. Vacuum extraction compared with forceps is:

More likely to be associated with:

- Unsuccessful birth (Soft cup vacuum extractors have a higher rate of failure but lower incidence of neonatal scalp trauma)
- Cephalhaematoma
- Retinal haemorrhage.

Less likely associated with significant maternal perineal and vaginal trauma.

No more likely to be associated with:

- Birth by caesarean section
- Low 5 minute Apgar scores
- Need for phototherapy.

There is insufficient evidence to favour either a rapid (over 2 minute) or stepwise increment in negative pressure with vacuum extractor.

12. Risk-based information can be summarised as follows:

Maternal outcomes:

- Episiotomy; vacuum, 50–60%; and forceps, more than or equal to 90%.
- Significant vulvo–vaginal tear; vacuum, 10%; and forceps, 20%.
- OASI; vacuum, 1–4%; and forceps, 8–12%. The most recent NMPA data notes as many as 1 in 20 vaginal births assisted by forceps occurred without an episiotomy. Of these, 31% resulted in OASI. Therefore, women should be recommended episiotomy for forceps birth. This is really important information for women to give informed consent to forceps birth without episiotomy.
- Postpartum haemorrhage; vacuum and forceps, 10–40%.
- Urinary or bowel incontinence; common at 6 weeks, improves over time (RCOG 2020)

Perinatal outcomes:

- Cephalhaematoma; predominantly vacuum, 1–12%.
- Facial or scalp lacerations; vacuum and forceps, 10%
- Retinal haemorrhage; more common with vacuum than forceps, variable 17–38%.
- Jaundice or hyperbilirubinaemia; vacuum and forceps, 5–15%.
- Subgaleal haemorrhage; predominantly vacuum, 3 to 6 in 1000
- Intracranial haemorrhage; vacuum and forceps, 5 to 15 in 10 000.
- Cervical spine injury; mainly Kiellands rotational forceps, rare.
  Skull fracture; mainly forceps, rare.
- Facial nerve palsy; mainly forceps, rare.
- Fetal death; very rare

13. When should assisted vaginal birth be abandoned?

A) Ventouse

- No evidence of progressive descent with moderate traction during each pull of a correctly applied instrument by an experienced operator.
- Two 'pop-offs' of the instrument. Less experienced operators should seek senior support after one 'pop-off' to ensure the woman has the best chance of a successful assisted vaginal birth
- Complete vacuum-assisted birth in the majority of cases with a maximum of three pulls to bring the fetal head on to the perineum. Three additional gentle pulls can be used to ease the head out of the perineum.
- If there is minimal descent with the first two pulls of a vacuum, the operator should consider whether the application is suboptimal, the fetal position has been incorrectly diagnosed or there is cephalopelvic disproportion.

- The rapid negative pressure application for vacuum-assisted birth is recommended as it reduces the duration of the procedure with no difference in maternal and neonatal outcomes.
- Duration of application is associated with an increased risk of neonatal adverse outcome (more than 12 minutes)

B) Forceps

- Discontinue attempted forceps birth where the forceps cannot be applied easily, the handles don't approximate easily or if there is a lack of progressive descent with moderate traction.
- Discontinue rotational forceps birth if rotation is not easily achieved with gentle pressure.
- Discontinue attempted forceps birth if birth is not imminent following three pulls of a correctly applied instrument by an experienced operator.
- If there is minimal descent with the first one or two pulls of the forceps, the operator should consider whether the application is suboptimal, the position has been incorrectly diagnosed or there is cephalopelvic disproportion.
- Inform neonatologist following unsuccessful instrumental births due to potential neonatal morbidity
- Increased risk of fetal head impaction at caesarean birth following a failed attempt at forceps birth and should be prepared to disimpact the fetal head using recognised manoeuvres.
- Unsuccessful forceps birth is associated with excessive pulls (more than 3) and prolonged application of the instrument (more than 12 minutes) is associated with an increased risk of neonatal adverse outcome. (RCOG green top 26, 2020 p96)

14. Sequential use of instruments

The use of sequential instruments is associated with:

- Increased risk of trauma to the infant.
- Increased neonatal morbidity
- Increased risk of OASI

However, the operator needs to balance the risks of a caesarean birth following failed vacuum extraction with the risks of forceps birth following failed vacuum extraction.

15. PROCESS

- Assisted vaginal birth should not be attempted unless criteria for safe birth has been met.
- For a trial of assisted birth in theatre, the consultant should be informed
- Assisted vaginal birth should be performed by, or in the presence of, an operator who has the knowledge, skills and experience necessary to assess the woman, complete the procedure and manage any complications that arise
- Adverse outcomes, including unsuccessful forceps or vacuum birth, should trigger an incident report as part of effective risk management processes.
- Paired cord blood samples should be processed and recorded following all attempts at assisted vaginal birth.
- Clear documentation should be completed by the obstetrician conducting the birth on the pre-printed assisted vaginal birth sheet.
- In the absence of robust evidence to support routine use of episiotomy in assisted vaginal birth, restrictive use of episiotomy, using the operators individual judgment, is supported.

- When performing a mediolateral episiotomy the cut should be at a 60 degree angle initiated when the head is distending the perineum
- Good standards of hygiene and aseptic techniques are recommended
- A single prophylactic dose of intravenous amoxicillin and clavulanic acid should be recommended following assisted vaginal birth as it significantly reduces confirmed or suspected maternal infection compared to placebo (RCOG assisted birth 2020)

16. Postnatal care:

- Reassess for the need for thromboprophylaxis; wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/venous-thromboembolism-vte-risk-assessment-prophylaxis-and-treatment-in-pregnancy-and-puerperium/
- Regular Paracetamol and Ibuprofen should be prescribed if not contraindicated.
- Timing and volume of first void urine should be monitored and documented.
- A post void residual should be measured if retention is suspected (CTM UHB bladder care guideline on WISDOM)
- Women who have had a spinal anaesthetic or an epidural that has been topped up for a trial may be at increased risk of retention and should be recommended to have an indwelling catheter in place for at least 6-12 hours post-birth to prevent a symptomatic bladder overfilling.
- Women should be offered physiotherapy directed –strategies to prevent urinary incontinence at 3 months.
- Women should be reviewed prior to hospital discharge and best practice would be for the woman to be reviewed by the obstetrician who supported the birth to discuss the indication for assisted birth,

management of any complications and the prognosis for future births.

- Offer advice and support to women who have had a traumatic birth and wish to talk about their experience. The effect on the birth partner should also be considered as well as sign posting to the birth reflections service.
- Do not offer single session, high-intensity psychological interventions with an explicit focus on 'reliving' the trauma.
- Offer women with persistent post-traumatic stress disorder (PTSD) symptoms at 1 month referral to skilled professionals such as specialist PNMH services as recommended in NICE guidance on PTSD
- Women should be encouraged to aim for a spontaneous vaginal birth in a subsequent pregnancy, as there is a high likelihood of success (approximately 80 percent even for complex assisted births in theatre).
- Care should be individualised for women who have sustained a third or fourth degree perineal tear. (NICE 235, 2023)

17. Auditable standards:

- Proportion of assisted vaginal births
- Proportion of unsuccessful assisted vaginal births
- Proportion of third- and fourth-degree perineal tears (1–4% for vacuum and 8–12% for forceps).
- Proportion of neonatal morbidity (trauma, including subgaleal haemorrhage, brachial plexus injury, fracture, facial nerve palsy, or cerebral haemorrhage), low Apgar score less than 7 at 5 minutes and cord arterial pH less than 7.10
- Proportion of documentation of written or verbal consent for assisted vaginal birth (100%).

- Proportion of written consent documented for trial of assisted vaginal birth in operating theatre (100%).
- Completeness of documentation (100%).

18. References:

RCOG Green_top Guidelines; Assisted Vaginal Birth; Green_top Guideline No. 26 (2020)

Miller

NICE Intrapartum care guidelines NG235, Sept 2023

Appendix 1 Assisted Vaginal Birth Sheet

Date: _____ Time: _____

Parity: _____ Gestational Age: _____

BMI: _____

Labour: Spontaneous onset / IOL / Augmented

Indications:

_____

Name and addressograph

Location: Room / Theatre

Doctors name: _____ Grade: _____

Senior doctor involved in decision making: Yes / No Name: _____ Grade: _____

Senior Doctor present for delivery: Yes / No Name: _____ Grade: _____

Anaesthetist present: Yes / No Name: _____ Grade: _____

Analgesia / Anaesthesia: Epidural top up / Spinal / GA / Pudendal / Local: _____

Consent : Verbal / Written
Bladder emptied: Yes / No
Examination Findings:

PA: _____ /5 palpable	Cervical dilatation: _____cm
Station:	Fetal position:
Caput: none / + / ++ / +++	Moulding: none / + / ++ / +++
Bladder catheterised: Yes / No	

Type of birth:

Manual rotation: Yes / No

Ventouse: Posterior metal cup / Kiwi / Other _____
Number of pulls: _____ Duration of Cup application: _____mins
Cup detachment: Yes / No; If Yes; number of times: _____

Forceps: Traction / Lift out / Rotational : _____
Number of pulls: _____ Duration of forceps application: _____mins

Manual perineal protection Yes/ NO

Second instrument used: Yes / No
If Yes; which instrument: _____Number of pulls: _____
If CS, failure of instrumental to birth time: _____
Initial decision to birth time: _____

Any difficulty in delivering shoulders - No / Yes

If yes, please give details (complete the shoulder dystocia proforma_____

Time of birth of baby: _____ Time of cord clamping: _____
If cord clamped at < 60 sec, please give indication: _____

Delivery of placenta: CCT / Manual
Perineal tear - 1º / 2º / 3º / 4º Labial tear: Y / N Episiotomy: Y / N
PR: _____ Measured Blood loss: _____ mls.

Pre procedure check

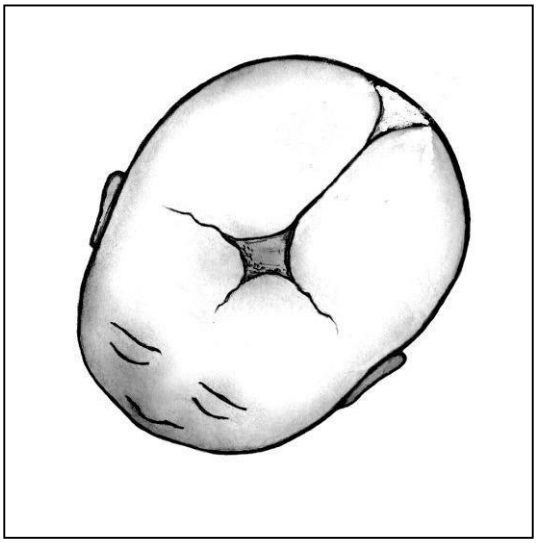
Swabs: _____ Needles: _____ Instruments: _____

End of procedure swabs needles and instrument check:

Swabs: _____ Needles: _____ Instruments: _____

Signatures 1 _____

2 _____



Condition of baby

Cord blood: Arterial Venous

pH: _____ _____

BE: _____ _____

Apgars: ___[1]; ___[5]; ___[10]; Birth weight: _____

Admission to NNU: Yes / No

Indicate site of cup application and/or **Trauma**:

Forceps marks etc. on diagram scalp abrasion / forceps mark/ facial abrasion / cuts /other

Additional information:

Post- op instructions:

Level of care: Routine / HDU

Syntocinon infusion : Yes / No

Catheter : Yes/ No Remove ……

Vaginal pack: Yes / No Remove…… If YES band in place Yes / No

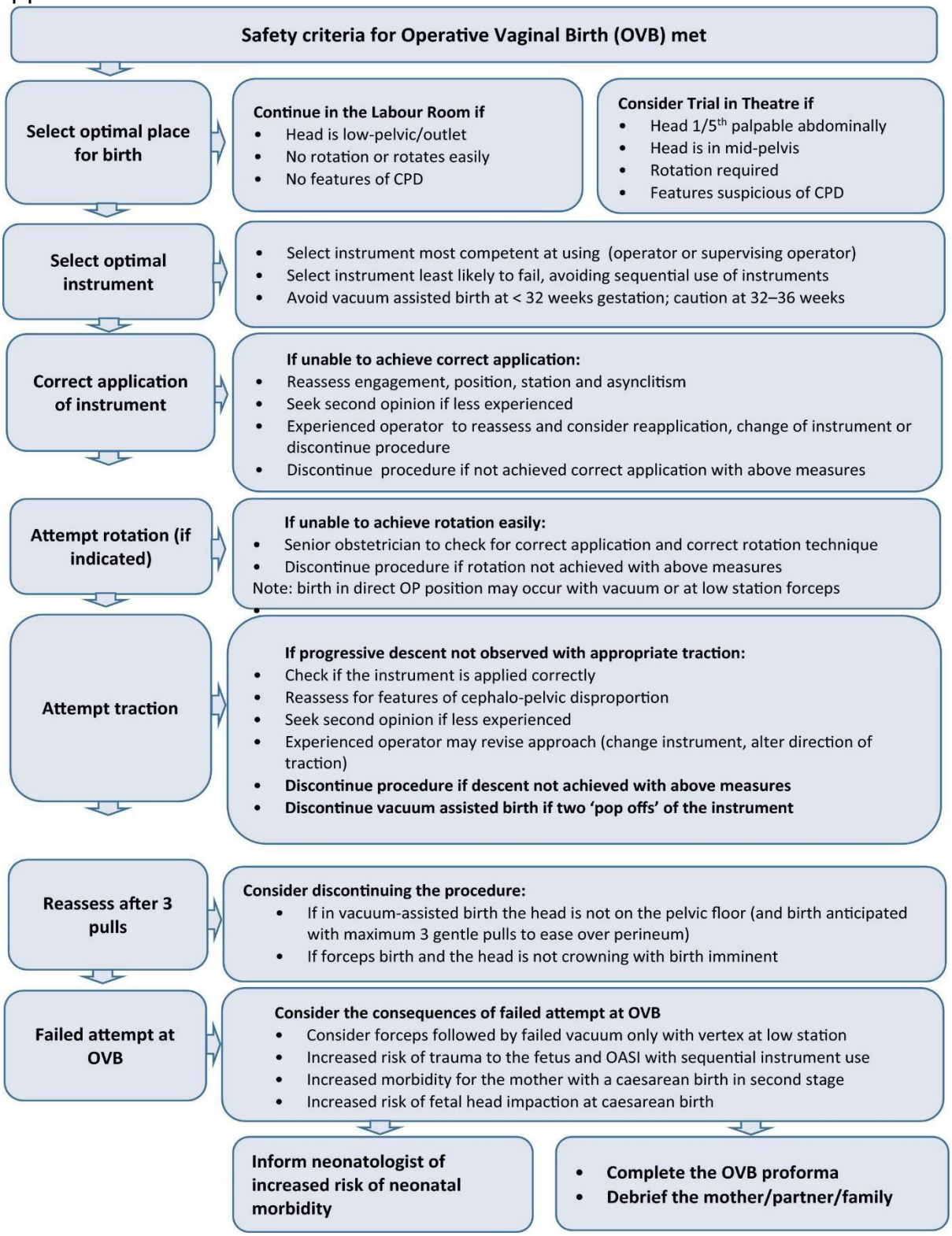
Analgesia prescribed: Yes /No Diclofenac 100mg PR: Yes / No

Thrombo-prophylaxis: **Post Natal Risk Assessment completed: Yes / No**
TEDS / LMWH for _____ days

Antibiotics given: Yes / No

Signature:	**Print name:**

Appendix 2


Safety criteria for Operative Vaginal Birth (OVB) met
Select optimal place for birth
Continue in the Labour Room if
Head is low-pelvic/outlet
No rotation or rotates easily
No features of CPD
Consider Trial in Theatre if
Head 1/5th palpable abdominally
Head is in mid-pelvis
Rotation required
Features suspicious of CPD
Select optimal instrument
Select instrument most competent at using (operator or supervising operator)
Select instrument least likely to fail, avoiding sequential use of instruments
Avoid vacuum assisted birth at < 32 weeks gestation; caution at 32–36 weeks
Correct application of instrument
If unable to achieve correct application:
Reassess engagement, position, station and asynclitism
Seek second opinion if less experienced
Experienced operator to reassess and consider reapplication, change of instrument or discontinue procedure
Discontinue procedure if not achieved correct application with above measures
Attempt rotation (if indicated)
If unable to achieve rotation easily:
Senior obstetrician to check for correct application and correct rotation technique
Discontinue procedure if rotation not achieved with above measures
Note: birth in direct OP position may occur with vacuum or at low station forceps
Attempt traction
If progressive descent not observed with appropriate traction:
Check if the instrument is applied correctly
Reassess for features of cephalo-pelvic disproportion
Seek second opinion if less experienced
Experienced operator may revise approach (change instrument, alter direction of traction)
Discontinue procedure if descent not achieved with above measures
Discontinue vacuum assisted birth if two 'pop offs' of the instrument
Reassess after 3 pulls
Consider discontinuing the procedure:
If in vacuum-assisted birth the head is not on the pelvic floor (and birth anticipated with maximum 3 gentle pulls to ease over perineum)
If forceps birth and the head is not crowning with birth imminent
Failed attempt at OVB
Consider the consequences of failed attempt at OVB
Consider forceps followed by failed vacuum only with vertex at low station
Increased risk of trauma to the fetus and OASI with sequential instrument use
Increased morbidity for the mother with a caesarean birth in second stage
Increased risk of fetal head impaction at caesarean birth
Inform neonatologist of increased risk of neonatal morbidity
Complete the OVB proforma
Debrief the mother/partner/family