Ref: Operative Vaginal Delivery Guidelines

INITIATED BY:	Cwm Taf Morgannwg University Health Board Obstetrics and Gynaecology Directorate
APPROVED BY:	Labour Ward
DATE APPROVED:	June 2020
VERSION:	1
OPERATIONAL DATE:	June 2020
DATE FOR REVIEW:	4 years from date of approval or if any legislative or operational changes require
DISTRIBUTION:	Midwifery, medical and neonatal staff at Cwm Taf University Health Board. Via SharePoint
FREEDOM OF INFORMATION STATUS:	Open

Guidelines Definition

Clinical guidelines are systemically developed statements that assist clinicians and patients in making decisions about appropriate treatments for specific conditions.

They allow deviation from a prescribed pathway according to the individual circumstances and where reasons can be clearly demonstrated and documented.

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

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.

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1. Definition

- An operative 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 operative 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 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

- The Montgomery ruling has emphasised the importance of informed consent and the number of high profile manslaughter convictions on the grounds of gross negligence have highlighted the risk of a criminal conviction, where serious shortcomings are identified in medical care provided to a patient who dies**.**
- Vacuum and forceps delivery 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 delivery.

- 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 section 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

Operative vaginal birth rates can be reduced by:-

- Giving all women continuous support in labour
- Use of upright or lateral positions in second stage of labour
- Delayed pushing in women with epidurals can reduce rotational and mid cavity operative delivery

Epidural analgesia and operative vaginal delivery:

- 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 operative vaginal delivery

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 Operative 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: lack of continuing progress for 3 hours (total active and passive second stage labour) with regional anaesthesia, or 2 hours without regional anaesthesia.
- Multiparous women: lack of continuing progress for 2 hours (total of active and passive second stage labour) with regional anaesthesia, or 1 hour without regional anaesthesia.
- 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. Relative Contraindications to Operative Vaginal Birth

- Foetal bleeding disorders , e.g. Alloimmune thrombocytopenia
- Foetal predisposition to fractures, such as osteogenesis imperfecta
- Blood born viral infections of the mother are not an absolute contraindication to operative vaginal delivery however it is sensible to avoid difficult operative vaginal delivery where there is increased risk of foetal abrasion or scalp trauma and to avoid foetal scalp clip or blood sampling during labour.
- Vacuum extractors are contraindicated with face presentations.
- Operators should be aware that there is a higher risk of subgaleal haemorrhage and scalp trauma with vacuum extraction compared with forceps at preterm gestational ages. Vacuum birth should be avoided below 32 weeks of gestation and should be used with caution between 32+0and 36+0weeks of gestation

- Vacuum extraction is not contraindicated following a fetal blood sampling procedure or application of a fetal scalp electrode
- Forceps or vacuum extractor deliveries are contraindicated before full dilatation of the cervix has occurred.

7. Higher rates of failed operative 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.

Operative vaginal births that have a higher rate of failure should be considered a 'trial' and conducted in a place where immediate recourse to category one caesarean section can be undertaken.

8. Management of Operative Vaginal Birth

- Careful assessment of the clinical situation
- Clear communication with the mother and healthcare personnel
- Competent operator either performing or supervising the procedure
- There is insufficient evidence for routine use of ultrasound to determine foetal head position as part of assessment for operative vaginal delivery, However, Clinicians should be aware that ultrasound assessment of the fetal head position prior to assisted vaginal birth is more reliable than clinical examination

9. Prerequisites for operative 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.
- ✓ Assessment of caput and moulding, no more than moderate (or+2)
- ✓ Pelvis is deemed adequate.

Preparation of mother

- Clear explanation should be given and informed consent obtained.
- Appropriate analgesia is in place for mid cavity rotational deliveries. This will usually be a regional block.
- A pudendal block may be appropriate for low or outlet delivery, particularly in the context of urgent delivery.
- Maternal Bladder has been emptied recently.
- Indwelling catheter should be removed or balloon deflated.
- Aseptic technique

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 operative vaginal delivery, especially during their first pregnancy

- For deliveries in the delivery room, verbal consent should be obtained before operative vaginal delivery and the discussion documented in the notes, if circumstances allowed written consent may also be obtained.

- 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 different benefits and risks, failed delivery with selected instrument is more likely with vacuum extraction.

- The options available for rotational delivery include: Kielland Forceps, manual rotation followed by direct traction forceps or rotational vacuum extraction. Rotational deliveries should be performed by experienced operators

11. Vacuum extraction compared with forceps is:

More likely to be associated with:

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

- Maternal worries about the baby

Less likely associated with significant maternal perineal and vaginal trauma.

No more likely to be associated with:

- Delivery 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%.
- Postpartum haemorrhage; vacuum and forceps, 10–40%.
- Urinary or bowel incontinence; common at 6 weeks, improves over time

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 operative vaginal delivery 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
- 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.

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 failed 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

14. Sequential use of instruments

The use of sequential instruments is associated:

- 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

- Operative vaginal delivery should not be attempted unless criteria for safe delivery has been met.
- For a trail of instrumental delivery 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 delivery, 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 operative vaginal delivery.
- Clear documentations should be completed by the obstetrician conducting the birth on the pre-printed operative vaginal delivery operation sheet.
- In the absence of robust evidence to support routine use of episiotomy in operative vaginal delivery, 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

16. Postnatal care:

- Reassess for the need for thromboprophylaxis
- 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
- Women who have had a spinal anaesthetic or an epidural that has been topped up for a trail 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-delivery to prevent a symptomatic bladder overfilling.

- Women should be offered physiotherapy directed –strategies to prevent urinary incontinence at 3months
- Women should be reviewed prior to hospital discharge and best practise would be for the women to be reviewed by the obstetrician who conducted the delivery to discuss the indication for operative delivery, management of any complications and the prognosis for future deliveries.
- 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.
- 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 as per the NICE guidance on PTSD
- Women should be encouraged to aim for a spontaneous vaginal delivery in a subsequent pregnancy as there is a high possibility of success (approximately 80 percent even for complex operative vaginal delivery in theatre).
- Care should be individualised for women who have sustained a third or fourth degree perineal tear.

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
- 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

Appendix 1 Operative Vaginal Delivery Sheet

Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board

Date: _____ Time: _____

Parity: _____ Gestational Age: _____

BMI: _____

Labour: Spontaneous onset / IOL / Augmented

Indications:

_____

Name and addressograph

Location: Room / Theatre

Operator's 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 delivery

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

Any difficulty in delivering shoulders - No / Yes

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

Time of delivery of baby: _____ Time of cord clamping: _____

If cord clamped at < 60 sec, please give indication: _____

Delivery of placenta: CCT / Manual

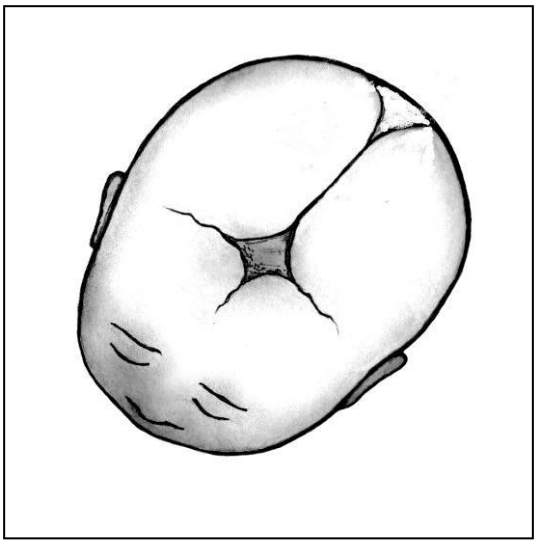
Perineal tear - 1º / 2º / 3º / 4º Labial tear: Y / N Episiotomy: Y / N
PR: _____ Measured Blood loss: _____ mls.

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 ……

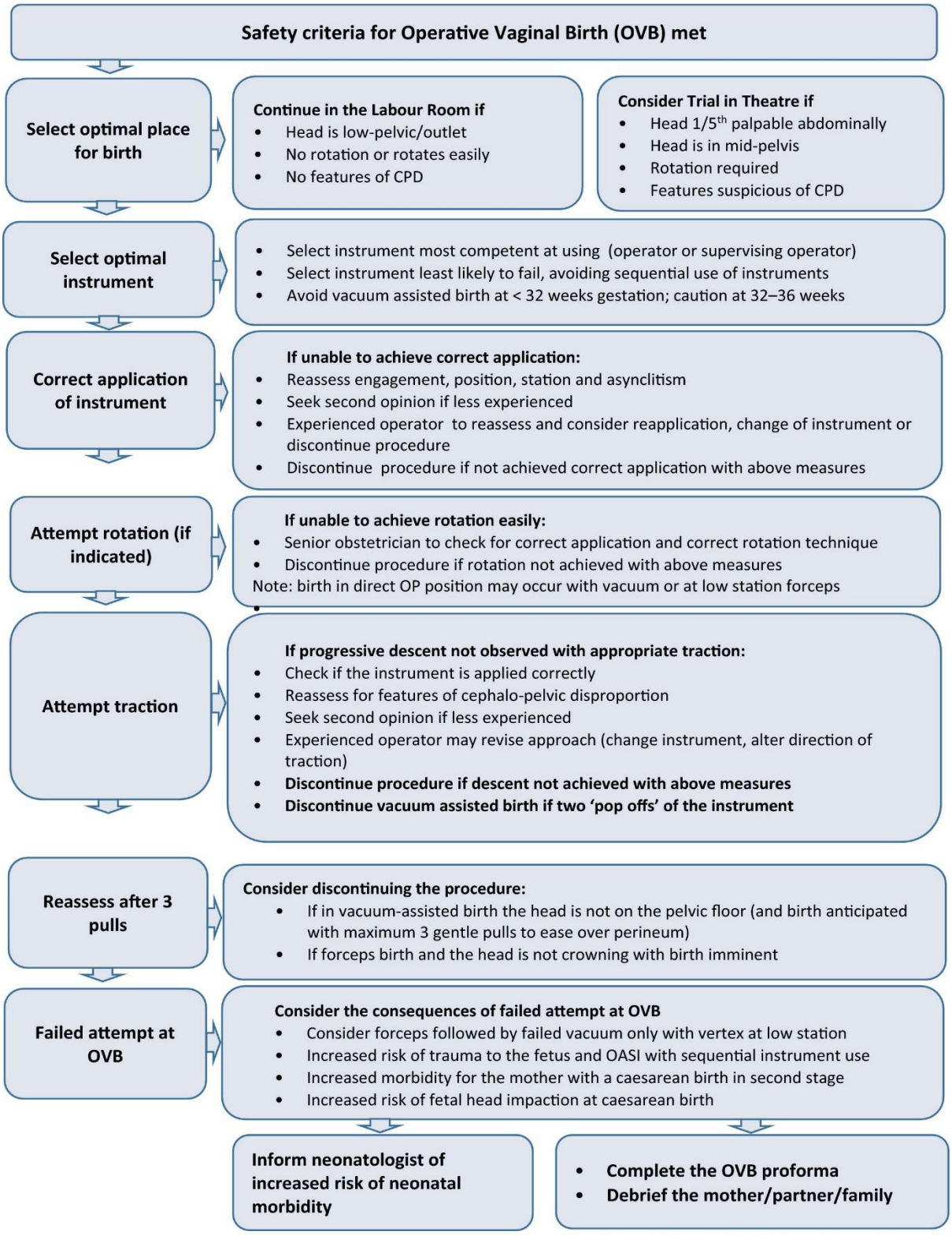
Vaginal pack: Yes / No Remove…… If YES band in place Yes / No

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

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

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

Directorate of Women & Child Health Checklist for Clinical Guidelines being submitted for Approval by Quality & Safety Group

Title of Guideline:	Operative Vaginal Delivery
Name(s) of Author:	Guideline Committee
Chair of Group or Committee supporting submission:	Mohamed Elnasharty, Kathryn Greaves, Sharon Evans, Karin Bisseling
Issue / Version No:	1
Next Review / Guideline Expiry:	2023
Details of persons included in consultation process:	Labour Forum, All Obstetric and Anaesthetic Consultants, Midwifery team
Brief outline giving reasons for document being submitted for ratification	New CTM Guideline
Name of Pharmacist (mandatory if drugs involved):	Not applicable
Please list any policies/guidelines this document will supercede:	New CTMUHB Guideline
Keywords linked to document:	Operative Vaginal Delivery
Date approved by Directorate Quality & Safety Group:	
File Name: Used to locate where file is stores on hard drive	