

# Assisted Vaginal Birth Guideline

Guideline Number:	655	Supersedes:		Classification	Clinical
Version No:	Date of EqIA:	Approved by:	Date Approved:	Date made active:	Review Date:
2	Aug 2020	Obstetric Guideline, Audit and Research Group Directorate Q&S Group	07/07/2020 27/08/2020	9.9.2020	01.07.2023

Brief Summary of Document:	Clinical Guidelines to ensure the safe management of women and babies requiring an assisted vaginal birth
Scope	Midwives and obstetricians involved in the care of women necessitating assisted birth by forceps, vacuum extraction, KIWI

To be read in conjunction with:	<p>Management of 3<sup>rd</sup> and 4<sup>th</sup> degree perineal tears</p> <p>Thromboprophylaxis during pregnancy and the puerperium Guideline</p> <p>Bladder care Management Guideline</p> <p>RCOG Operative Vaginal Delivery (Consent Advice No.11)  <a href="https://www.rcog.org.uk/en/guidelines-research-services/guidelines/consent-advice-11/">https://www.rcog.org.uk/en/guidelines-research-services/guidelines/consent-advice-11/</a> RCOG: Responsibilities of Consultant On-Call (Good Practice No.8)  <a href="https://www.rcog.org.uk/en/guidelines-research-services/guidelines/good-practice-8/">https://www.rcog.org.uk/en/guidelines-research-services/guidelines/good-practice-8/</a></p>
---------------------------------	---

# HYWEL DDA UNIVERSITY HEALTH BOARD

Owning group	Obstetric Guideline, Audit and Research Group Approval date 07.07.2020
--------------	---

Reviews and updates		
Version no:	Summary of Amendments:	Date Approved:
1	New guideline	14/09/2020
2	Guideline Update	27/08/2020

## Glossary of Terms

Term	Definition
CS	Caesarean Section
CTG	Cardiotocograph
OASI	Obstetric anal sphincter injury
PCEA	Patient Controlled Epidural anaesthesia
PTSD	Post Traumatic Stress Disorder
VTE	Venousthromboembolism

Keywords	Vaginal delivery, assisted, instrumental, CTG, meconium, epidural, mid-pelvis
----------	---

# HYWEL DDA UNIVERSITY HEALTH BOARD

## 1. Introduction:

In the UK, between 10% and 15% of all women give birth by assisted vaginal birth. Almost 1 in every 3 nulliparous women gives birth by vacuum or forceps, with lower rates in midwifery-led care settings.

Two new developments have occurred since 2011 (the previous RCOG guidelines):

- The Montgomery ruling has emphasised the importance of informed consent
- A 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.

## 2. Aim/Objectives:

The aim of this guideline is to provide evidence-based recommendations on the use of forceps and vacuum extraction for both rotational and non-rotational assisted vaginal births.

## 3. Scope

Midwives and obstetricians involved in the care of women necessitating assisted birth by forceps, vacuum extraction, KIWI.

The scope of this guideline includes indications, procedures and governance issues relating to assisted vaginal birth.

## 3. Avoidance of Assisted Vaginal Delivery:

- Continuous support during labour reduces the need for assisted vaginal delivery
- Epidural analgesia increases the need for assisted vaginal delivery (but newer techniques, like use of lower concentrations of local analgesic or patient controlled epidural analgesia PCEA, don't have this outcome). Administering epidural analgesia in either latent phase of labour or active phase has the same outcome.
- Adopting upright and lateral positions in the second stage of labour decreases the need for assisted vaginal birth.  
If epidural analgesia is not used clinicians should encourage upright or lateral positions.  
If epidural analgesia is used clinicians should encourage lying down lateral positions rather than upright.
- Delayed pushing for 1-2 hours in nulliparous women who are using epidural analgesia reduces the need for rotational and mid-pelvic assisted vaginal birth.
- There is insufficient evidence to recommend any of the following:
  - Stopping epidural analgesia during pushing. This increases the pain and does not reduce assisted vaginal birth rates.
  - Routine oxytocin augmentation in women with epidural analgesia.  
NICE recommends that oxytocin should not be routinely started in the second stage. It should be used with caution in multiparous women following discussion with the senior Obstetrician
  - Routine prophylactic manual rotation of fetal malposition in the second stage.

## 4. Classification of Assisted Vaginal Birth:

<b>Outlet</b>	<ul style="list-style-type: none"> <li>• Fetal scalp visible without separating the labia.</li> <li>• Fetal skull has reached the perineum.</li> <li>• Rotation does not exceed 45°.</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>• Fetal skull is at station + 2 cm, but not on the perineum.</li> <li>• Two subdivisions:                             <ul style="list-style-type: none"> <li>- Non-rotational <math>\leq 45^\circ</math></li> <li>- Rotational <math>&gt; 45^\circ</math></li> </ul> </li> </ul>
<b>Mid</b>	<ul style="list-style-type: none"> <li>• Fetal head is no more than one-fifth palpable per abdomen.</li> <li>• Leading point of the skull is at station 0 or + 1 cm.</li> <li>• Two subdivisions:                             <ul style="list-style-type: none"> <li>- Non-rotational <math>\leq 45^\circ</math></li> <li>- Rotational <math>&gt; 45^\circ</math></li> </ul> </li> </ul>

## 5. Indications for Assisted Vaginal Birth: General

- There are no absolute indications.
- Clinical judgment is required in all situations

### 5.1 Fetal Indications:

- Fetal compromise: pathological CTG, thick meconium

### 5.2 Maternal Indications:

- Maternal exhaustion and distress.
- Medical indications to avoid Valsalva manoeuvre such as:
  - cardiac disease
  - hypertensive crisis
  - cerebral vascular disease or malformations
  - myasthenia gravis
  - spinal cord injury
  - inadequate progress in the second stage of labour:
    - Nulliparous women – lack of continuing progress for 3 hours (total of active and passive second stage of labour) with regional analgesia **OR** 2 hours without regional analgesia.
    - Parous women – lack of continuing progress for 2 hours (total of active and passive second-stage labour) with regional analgesia **OR** 1 hour without regional analgesia

## 6. Contraindications of Assisted Vaginal Delivery:

- Forceps and vacuum extraction are contraindicated **before full dilatation of the cervix.**
- Vacuum extraction is contraindicated with **face presentation.**

## HYWEL DDA UNIVERSITY HEALTH BOARD

- Vacuum extraction is not recommended **below 32+0 weeks** and should be used with caution **between 32+0 to 36+0 weeks** because of the susceptibility of the preterm infant to cephalohaematoma, intracranial haemorrhage, subgaleal haemorrhage and neonatal jaundice.
- **Relative contraindications:**
  - **Fetal bleeding disorders** (alloimmune thrombocytopenia) or a predisposition to fracture (osteogenesis imperfecta).
  - There are high risks if the fetal head has to be delivered by CS from deep in the pelvis. This should be a senior decision in advance of labour.
  - In the case of suspected fetal bleeding disorders a low forceps may be accepted **but vacuum should be avoided.**
  - Vacuum extraction is not contraindicated following a fetal blood sampling procedure or application of a fetal scalp electrode.
- **The following is NOT an absolute contraindication:**
  - **Blood borne viral infections** in the mother.
  - However it is sensible to avoid a difficult assisted vaginal birth where there is an increased chance of fetal abrasion or scalp trauma.

### 7. Preparation of Assisted Vaginal Delivery:

#### 7.1 Consent:

- 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 CS 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.
- For birth room procedures verbal consent should be obtained prior to assisted vaginal birth and the discussion should be documented in the notes.
- Women should be informed about assisted vaginal birth in the antenatal period, especially during their first pregnancy. If they indicate specific restrictions or preferences then this should be explored with an experienced obstetrician and senior midwife in advance of labour.

#### 7.2 The Role of Ultrasound:

- Ultrasound assessment of the fetal head position prior to assisted vaginal birth is more reliable than 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.

# HYWEL DDA UNIVERSITY HEALTH BOARD

## 8. Prerequisites:

<b>Full abdominal and vaginal examination</b>	<ul style="list-style-type: none"> <li>• Head is <math>\leq</math> 1/5 palpable per abdomen (in most cases not palpable).</li> <li>• Cervix is fully dilated and the membranes ruptured.</li> <li>• Station at level of ischial spines or below.</li> <li>• Position of the fetal head has been determined.</li> <li>• Caput and moulding is no more than moderate (or +2).</li> <li>• Pelvis is deemed adequate.</li> </ul>
<b>Preparation of the mother</b>	<ul style="list-style-type: none"> <li>• Clear explanation given and informed consent taken and documented in the mother's case notes.</li> <li>• Ensure that trust has been established and full cooperation sought and agreed with the mother.</li> <li>• Ensure that appropriate analgesia is in place.             <ul style="list-style-type: none"> <li>- For midpelvic or rotational birth, this will usually be a regional block.</li> <li>- Pudendal block may be acceptable depending on the urgency for delivery.</li> <li>- Perineal block may be sufficient for low or outlet birth.</li> </ul> </li> <li>• Ensure that the maternal bladder has been emptied.</li> <li>• Ensure that the Indwelling catheter has been removed or balloon deflated.</li> <li>• Aseptic technique.</li> </ul>
<b>Preparation of staff</b>	<ul style="list-style-type: none"> <li>• The operator has the knowledge, experience and skill necessary.</li> <li>• Adequate facilities are available (equipment, bed, lighting) and access to an operating theatre.</li> <li>• For mid-pelvic births theatre facilities should be available to allow a caesarean birth to be performed without delay.</li> <li>• A senior obstetrician should be present if an inexperienced obstetrician is conducting the birth.</li> <li>• Anticipation of complications that may arise (e.g. shoulder dystocia, perineal trauma, postpartum haemorrhage).</li> <li>• Personnel are present who are trained in neonatal resuscitation.</li> </ul>

## 9. Performance of Assisted Vaginal Birth:

### 9.1 Who should perform the delivery:

- The operator should have the knowledge, skills and experience necessary to assess the mother, complete the procedure and manage any complications that arise.
- Trainees should achieve expertise in spontaneous vaginal birth prior to commencing training in assisted vaginal birth.
- Trainees should receive appropriate training in vacuum and forceps birth, including theoretical knowledge, simulation training and clinical training under direct supervision.
- Competency should be demonstrated before conducting unsupervised births.
- Complex assisted vaginal births should only be performed by experienced operators or under the direct supervision of an experienced operator.

### 9.2 Who should supervise:

- An experienced operator, competent at mid-pelvic births, should be present from the outset to supervise all attempts at rotational or mid-pelvic assisted vaginal birth.

### 9.3 Where to perform assisted vaginal birth:

- Non-rotational low-pelvic and lift out assisted vaginal births have a low probability of failure and most procedures can be conducted safely in a birth room.
- Assisted vaginal births that have a higher risk of failure should be considered a trial and be attempted in an operating theatre where immediate recourse to caesarean birth can be undertaken.
- Factors associated with high rate of failure:
  - 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 centile.
  - Occipito–posterior position.
  - Mid-pelvic birth or when one-fifth of the head is palpable per abdomen.

### 9.4 Which instrument should be used:

- The operator should choose the instrument most appropriate to the clinical circumstances and their level of skill.
- Operators should be aware that forceps and vacuum extraction are associated with different benefits and risks (see later).
- Failure to complete the birth with a single instrument is more likely with vacuum extraction but maternal perineal trauma is more likely with forceps.
- Operators should be aware that soft cup vacuum extractors have a higher rate of failure but a lower incidence of neonatal scalp trauma.
- Rotational births should be performed by experienced operators.
- The choice of instrument should depend on the clinical circumstances and expertise of the individual. The options include:
  - Kielland's rotational forceps
  - manual rotation followed by direct traction forceps or vacuum
  - rotational vacuum extraction.

# HYWEL DDA UNIVERSITY HEALTH BOARD

## 10. Risk based information - Vacuum extraction as compared to forceps:

Vacuum extraction is:	<ul style="list-style-type: none"> <li>• More likely to fail at achieving vaginal birth OR 1.7; 95% CI 1.3–2.2</li> </ul>
	<ul style="list-style-type: none"> <li>• More likely to be associated with cephalhaematoma OR 2.4; 95% CI 1.7–3.4</li> </ul>
	<ul style="list-style-type: none"> <li>• More likely to be associated with retinal haemorrhage OR 2.0; 95% CI 1.3–3.0</li> </ul>
	<ul style="list-style-type: none"> <li>• More likely to be associated with maternal worries about baby OR 2.2; 95% CI 1.2–3.9</li> </ul>
	<ul style="list-style-type: none"> <li>• Less likely to be associated with significant maternal perineal and vaginal trauma OR 0.4; 95% CI 0.3–0.5</li> </ul>
	<ul style="list-style-type: none"> <li>• No more likely to be associated with birth by caesarean birth OR 0.6; 95% CI 0.3–1.0</li> </ul>
	<ul style="list-style-type: none"> <li>• No more likely to be associated with low 5 min Apgar scores OR 1.7; 95% CI 1.0–2.8</li> </ul>
	<ul style="list-style-type: none"> <li>• No more likely to be associated with the need for phototherapy OR 1.1; 95% CI 0.7–1.8</li> </ul>

## 10.1 Maternal and Fetal Outcomes:

Maternal Outcomes	<ul style="list-style-type: none"> <li>• Episiotomy; vacuum, 50–60%; and forceps, more than or equal to 90%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Significant vulvo–vaginal tear; vacuum, 10%; and forceps, 20%.</li> </ul>
	<ul style="list-style-type: none"> <li>• OASI; vacuum, 1–4%; and forceps, 8–12%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Postpartum haemorrhage; vacuum and forceps, 10–40%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Urinary or bowel incontinence; common at 6 weeks, improves over time.</li> </ul>
Perinatal Outcomes	<ul style="list-style-type: none"> <li>• Cephalhaematoma; predominantly vacuum, 1–12%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Facial or scalp lacerations; vacuum and forceps, 10%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Retinal haemorrhage; more common with vacuum than forceps, variable 17–38%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Jaundice or hyperbilirubinaemia; vacuum and forceps, 5–15%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Subgaleal haemorrhage; predominantly vacuum, 3 to 6 in 1000.</li> </ul>
	<ul style="list-style-type: none"> <li>• Intracranial haemorrhage; vacuum and forceps, 5 to 15 in 10 000.</li> </ul>
	<ul style="list-style-type: none"> <li>• Cervical spine injury; mainly Kiellands rotational forceps, rare</li> </ul>
	<ul style="list-style-type: none"> <li>• Skull fracture; mainly forceps, rare.</li> </ul>
	<ul style="list-style-type: none"> <li>• Facial nerve palsy; mainly forceps, rare.</li> </ul>
<ul style="list-style-type: none"> <li>• Fetal death; very rare.</li> </ul>	

## 11. When to abandon vacuum extraction:



## HYWEL DDA UNIVERSITY HEALTH BOARD

- Discontinue vacuum-assisted birth where there is no evidence of progressive descent with moderate traction during each pull of a correctly applied instrument by an experienced operator.
- 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.  
Less experienced operators should stop and seek a second opinion. Experienced operators should re-evaluate the clinical findings and either change approach or discontinue the procedure.
- **Discontinue** vacuum-assisted birth if there have been 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.
- 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.
- The use of sequential instruments is associated with an increased risk of trauma to the infant.  
**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.
- Obstetricians should be aware of the increased risk of neonatal morbidity following failed vacuum assisted birth and/or sequential use of instruments and should inform the neonatologist when this occurs to ensure appropriate management of the baby.
- Obstetricians should be aware of the increased risk of OASI following sequential use of instruments.

### 12. When to abandon forceps procedure:

- Discontinue attempted forceps birth where the forceps cannot be applied easily, the handles do not 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.  
Less experienced operators should stop and seek a second opinion.  
Experienced operators should re-evaluate the clinical findings and either change approach or discontinue the procedure.
- Obstetricians should be aware of the potential neonatal morbidity following a failed attempt at forceps birth and should inform the neonatologist when this occurs to ensure appropriate care of the baby.
- Obstetricians should be aware of the increased risk of fetal head impaction at caesarean birth following a failed attempt at forceps birth and should be prepared to dis-impact the fetal head using recognised manoeuvres.

## 13. The Role of episiotomy:

- In the absence of robust evidence to support either routine or restrictive use of episiotomy at assisted vaginal birth, the decision should be tailored to the circumstances at the time and the preferences of the woman.
- The evidence to support use of mediolateral episiotomy at assisted vaginal birth in terms of preventing OASI is stronger for nulliparous women and for birth via forceps.
- When performing a mediolateral episiotomy the cut should be at a 60 degree angle initiated when the head is distending the perineum.

## 14. Aftercare Following Assisted Vaginal Birth:

### 14.1 Antibiotics:

- A single prophylactic dose of intravenous amoxicillin and clavulanic acid should be given following assisted vaginal birth as it significantly reduces confirmed or suspected maternal infection compared to placebo.

### 14.2 Thromboprophylaxis:

- Reassess the mother after assisted vaginal birth for VTE risk and the need for thromboprophylaxis due to the associated risks of immobility and prolonged labour and prescribe accordingly in line with Health Board guidance.

### 14.3 Analgesia:

- Routinely offer regular paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) unless there are contraindications.

### 14.4 Bladder Care:

- The timing and volume of the first void urine should be monitored and documented.
- A post void residual should be measured if urinary retention is suspected.
- Women who have received regional analgesia for a trial of assisted vaginal birth in theatre should have an indwelling catheter in situ after the birth to prevent covert urinary retention.  
This should be removed according to the local guideline
- Women who have had regional analgesia for a trial of assisted vaginal birth should be offered an indwelling catheter for 6–12 hours after birth (in keeping with the local guideline to prevent asymptomatic bladder overfilling, followed by fluid balance charts to ensure good voiding volumes).
- Offer women physiotherapy-directed strategies to reduce the risk of urinary incontinence 3 months following delivery.

## 15 Psychological morbidity:

- Shared decision making, good communication, and positive continuous support during labour and birth have the potential to reduce psychological morbidity following birth.
- Review women before hospital discharge to discuss the indication for assisted vaginal birth, management of any complications and advice for future births.
- Best practice is where the woman is reviewed by the obstetrician who performed the procedure.

## HYWEL DDA UNIVERSITY HEALTH BOARD

- 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 one month following delivery referral to the Perinatal Mental Health Team as recommended by per the NICE.

### 15.1 Giving information for future births:

- Inform women that there is a high probability of a spontaneous vaginal birth in subsequent labours following assisted vaginal birth (ranging from 90 to 80%).
- Individualise care for women who have sustained a third- or fourth-degree perineal tear, or who have ongoing pelvic floor morbidity.

## 16 Governance Issues:

### 16.1 Documentation:

- Documentation for assisted vaginal birth should include detailed information on the assessment, decision making and conduct of the procedure, a plan for postnatal care and sufficient information for counselling in relation to subsequent pregnancies.
- All documentation should be completed in the Labour and Delivery Record on the Instrumental Delivery page.
- Perineal Trauma should be documented on the Perineal Trauma and ~Repair page.
- In the event of a third or fourth degree tear, the appropriate page must be completed in the Labour and Delivery Record.
- Paired cord blood samples should be processed and recorded following all attempts at assisted vaginal birth.

### 16.2 Adverse events:

- Adverse outcomes, including failed assisted vaginal birth, major obstetric haemorrhage, OASI, shoulder dystocia and significant neonatal complications should trigger an incident report and should be reported via the Datix system.
- Obstetricians should contribute to adverse event reporting, confidential enquiries, and take part in regular reviews and audits. T  
They should respond constructively to outcomes of reviews, taking necessary steps to address any problems and carry out further retraining where needed.
- Obstetricians have a duty of candour; a professional responsibility to be honest with patients when things go wrong.

### 16.3 Auditable Topics:

The following should be audited routinely:

Database No:

Page 11 of 12

Version

2

### Assisted Vaginal Birth Guideline

---

**Please check that this is the most up to date version of this written control document**

## HYWEL DDA UNIVERSITY HEALTH BOARD

- Rate of assisted vaginal birth (the UK average is between 10-15 %).
- Rate of failed assisted vaginal births.
- Rate of sequential instrument use.
- Rate of 3<sup>rd</sup> and 4<sup>th</sup> degree perineal tears (1-4% vacuum and 8-12% forceps).
- Rate of neonatal morbidity trauma and admissions to Special Care
- Completeness of documentation (100%).

### 17. References:

- Murphy DJ, Strachan BK, Bahl R, on behalf of the Royal College of Obstetricians Gynaecologists. Assisted Vaginal Birth. BJOG 2020; <https://doi.org/10.1111/1471-0528.16092>.
- National Institute for Health and Care Excellence. Intrapartum care for healthy women and babies. Clinical Guideline 190. London: NICE; 2017.
- Royal College of Obstetricians and Gynaecologists. The Management of Third- and Fourth-Degree Perineal Tears. Green-top Guideline No. 29. London: RCOG; 2015.
- Royal College of Obstetricians and Gynaecologists. Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium. Green-top Guideline No. 37a. London: RCOG; 2015.
- Attilakos G, Draycott T, Gale A, Siassakos D, Winter C editors. ROBuST: RCOG Operative Birth Stimulation Training: Course Manual. Cambridge: Cambridge University Press; 2014.