WOMEN'S HEALTH AND PAEDIATRICS
MATERNITY UNIT

Assisted Vaginal Birth

Amendments			
Date	Page(s)	Comments	Approved by
Apr 2007		Document reviewed no changed	Maternity Guideline Group
June 2009		Complete Document review	Women's Health Guideline Group
Aug 2010			
March 2011		Audit tool amended	Women's Health Guideline Group
Oct 2014		Document reviewed in line with RCOG 2011 guidance and monitoring section updated	Women's Health Guideline Group
March 2018		Complete document review, no changes required	Women's Health Guideline Group
November 2021		Complete document review. Kiwi cup added to selection of cup	Women's Health Guideline Group
		Complete document review. Updated in line with RCOG 2020 Inclusion of IV antibiotic prophylaxis (ANODE study)	Perinatal Guidelines

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Assisted Vaginal Birth

Key Points:
Antenatal discussion about assisted vaginal birth, especially in first pregnancy
Instrument choice depends on operator and clinical circumstances

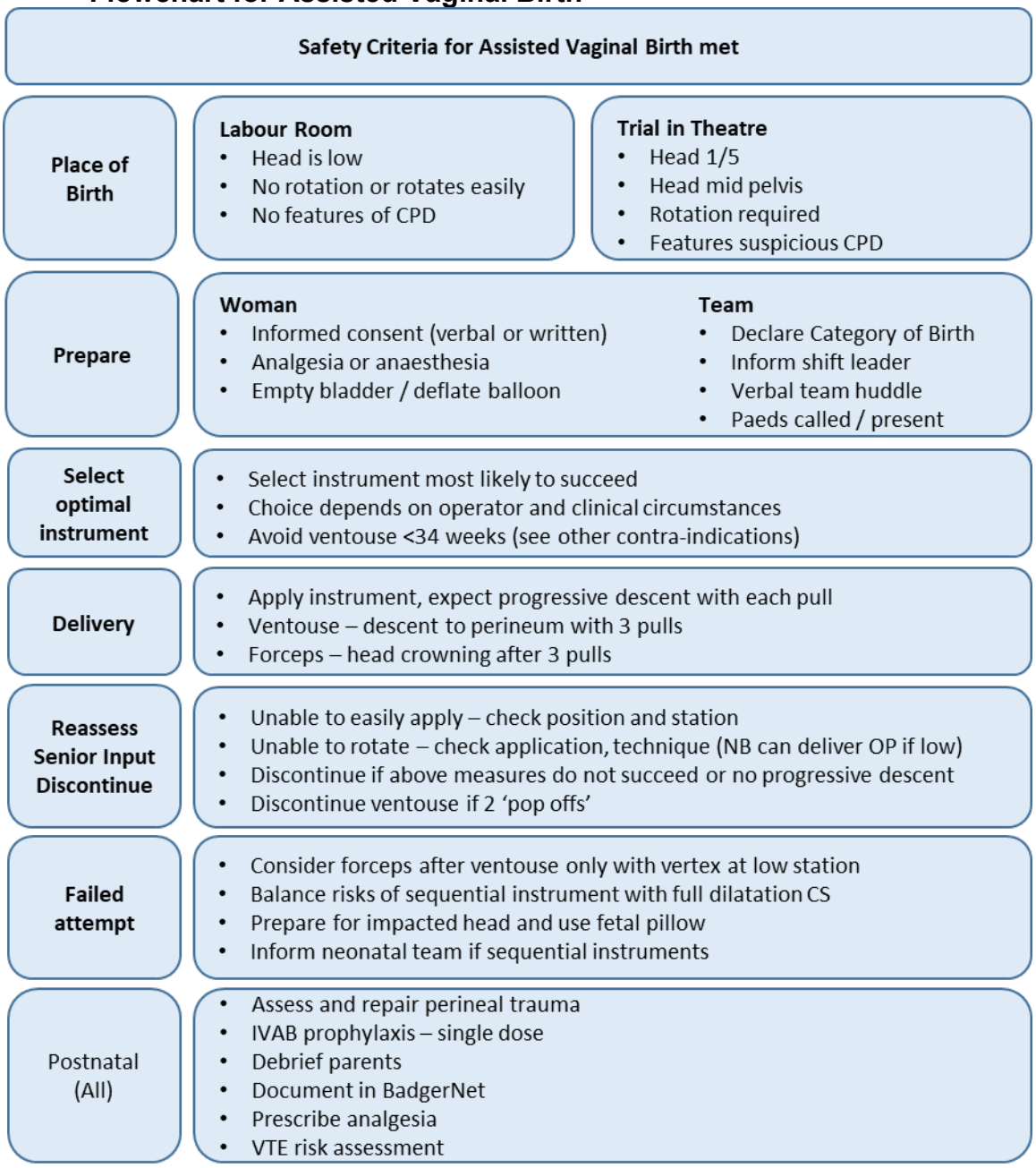
Key Practice Change:
Administer Single dose IV antibiotic prophylaxis as soon as possible after birth

- Reduces maternal infection
- Also reduces pain, wound breakdown and overall antibiotic use
- See Microguide – O+G surgical prophylaxis

See Also:

- Analgesia in Labour including Accidental Dural Puncture.
- Management of impacted fetal head and use of fetal pillow
- Perineal Trauma, Management & Repair
- Bladder Care

Flowchart for Assisted Vaginal Birth



1. INTRODUCTION

This guideline is based on the RCOG green top guideline no 26 (2020)

Assisted vaginal birth rates have remained stable at between 10% and 15% in the UK.
Around 1 in 3 nulliparous women undergo assisted delivery, with lower rates in midwifery led settings.
Instrumental delivery may be required in the second stage of labour to expedite delivery.

The terms assisted vaginal birth and operative vaginal delivery are used interchangeably

2. ANTENATAL DISCUSSION

Women should be informed about assisted vaginal birth in the antenatal period, especially in their first pregnancy. If they indicate specific restrictions or preferences, this should be explored with an obstetrician, ideally in advance of labour. Signpost women to the RCOG patient information leaflet on the RCOG website.

3. Indications for assisted vaginal birth (RCOG 2020).

Fetal	Suspected fetal compromise (cardiotocography pathological, abnormal fetal blood sampling result, thick meconium)
Maternal	Nulliparous women – lack of continuing progress for 3 hours (total of active and passive second-stage 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
	Maternal exhaustion or distress
	Medical indications to avoid Valsalva manoeuvre
Combined	Fetal and maternal indications for assisted vaginal birth often coexist

4. Essential conditions for safe assisted vaginal birth

Safe assisted vaginal birth requires a careful assessment of the clinical situation, clear communication with the woman and healthcare personnel, and expertise in the chosen procedure.

Essential conditions (RCOG 2020):

Full abdominal and vaginal examination	• Head is ≤ 1/5 palpable per abdomen (in most cases not palpable) • Cervix is fully dilated and the membranes ruptured • Station at level of ischial spines or below • Position of the fetal head has been determined • Caput and moulding is no more than moderate (or +2)[a] • Pelvis is deemed adequate
Preparation of mother	• Clear explanation given and informed consent taken and documented in women's case notes • Trust established and full cooperation sought and agreed with woman • Appropriate analgesia is in place: for midpelvic or rotational birth, this will usually be a regional block; a pudendal block may be acceptable depending on urgency; and a perineal block may be sufficient for low or outlet birth • Maternal bladder has been emptied • Indwelling catheter has been removed or balloon deflated • Aseptic technique
Preparation of staff	• Operator has the knowledge, experience and skill necessary • Adequate facilities are available (equipment, bed, lighting) and access to an operating theatre • Backup plan: for midpelvic births, theatre facilities should be available to allow a caesarean birth to be performed without delay; a senior obstetrician should be present if an inexperienced obstetrician is conducting the birth • Anticipation of complications that may arise (e.g. shoulder dystocia, perineal trauma, postpartum haemorrhage) • Personnel present who are trained in neonatal resuscitation

[a]Moderate moulding or +2 moulding is where the parietal bones are overlapped but easily reduced; severe moulding or +3 is where the parietal bones have overlapped and are irreducible indicating cephalopelvic disproportion.

- Ultrasound assessment of the fetal head position prior to assisted vaginal birth is recommended where uncertainty exists following clinical examination.

Preparation of Mother (additional notes to table above):

Informed Consent

- Explanation of the procedure, risks and benefits and alternatives
- An information leaflet is available on BadgerNet and at RCOG if needed. In the context of advanced labour a written leaflet is likely to be of limited use and personalised information is advised.
- Informed verbal consent obtained and documented for labour room births.
- Written consent is required for a trial of assisted vaginal birth in an operating theatre
- When mid pelvic 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.
- Obstetricians should refer to RCOG Consent Advice No. 11 Operative vaginal delivery

Analgesia

Ensure adequate analgesia for delivery in the room and adequate anaesthesia for delivery in theatre

Delivery in the room - effective analgesia:

- If epidural in situ and working well, this should be adequate. If not, it can potentially be 'topped up' by the anaesthetist for delivery.
- If analgesia remains suboptimal or no epidural, pudendal block and perineal infiltration should be administered.

Delivery in theatre -anaesthesia is required in case of failed instrumental and emergent caesarean delivery. This can be provided by regional anaesthesia – usually epidural top up or spinal anaesthesia.

Staff

- Team clear on plan, category of birth declared and additional precautions needed (a verbal 'team huddle' advised)
- Ensure wider MDT aware (inform shift leader) to allow situational awareness and support
- Operator competent in operative vaginal delivery. Obstetricians in training who have not been assessed as independently competent should carry out operative vaginal delivery under direct supervision until independent competence is confirmed.

5. Contra-indications to operative vaginal delivery

- Head 2/5 or more palpable on abdominal examination.
- Head above ischial spines on vaginal examination.
- Cervix not fully dilated. There are a few exceptions, which include a prolapsed cord at 9cm in a multiparous woman or a second twin (RCOG 2011)
- The essential safe conditions **must** be met, if not then operative vaginal birth is contra-indicated.

Absolute contraindications to ventouse (vacuum) delivery:

- Gestational age <34 weeks (use with caution by experienced obstetrician 34-36 weeks)
- Face presentation
- After coming head of a breech (forceps advised)
- No maternal effort (forceps advised)
- Fetal bleeding disorder (see below)

Relative contraindications to operative vaginal birth:

- Fetal bleeding disorders, e.g autoimmune thrombocytopenia
- Fetal predisposition to fracture, e.g., osteogenesis imperfecta

An individualised birth plan will be made in these cases, ideally in advance of labour, in collaboration with the woman. This may include the choice of a planned caesarean section to avoid the risk of operative vaginal delivery. This will be documented within BadgerNet. The risks of operative vaginal delivery should be balanced

against the risks to the woman and fetus of continuing the labour or the risks of caesarean section. A caesarean at full dilatation carries higher maternal morbidity. In addition the fetal risks of a difficult caesarean delivery with a low and potentially impacted fetal head may be higher than a low forceps delivery.

Blood born infections or the prior use of an FSE or FBS are not contraindications to operative vaginal birth.

6. Where should delivery take place?

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 labour room.

Assisted vaginal births that have are anticipated to have a higher risk of failure should be considered a trial and be attempted in theatre where immediate recourse to caesarean birth can be undertaken. The risks of unsuccessful assisted vaginal birth in the labour room should be balanced with the risks associated with the transfer time for birth in an operating theatre.

Higher rates of failure are associated with:

- Maternal body mass index of greater than 30kg/m^2
- Short maternal stature
- Estimated fetal weight of greater than 4000g or clinically big baby
- Occipito-posterior position
- Mid cavity delivery (fetal head is 1/5 palpable per abdomen and/or leading point of the skull is above station +2cms but not above the ischial spines)

7. Ventouse delivery

1. Select the largest available cup that can be applied (usually 60mm). The operator will decide whether a metal or kiwi cup is most appropriate depending on experience and clinical circumstances.

2. Digitally distend the perineum, insert the cup into the vagina without vacuum and position over the flexion point (3cm forward of the posterior fontanelle on the sagittal suture line).

3. Set the vacuum pressure at 20kPa, then run a finger around the cup to ensure that no maternal soft tissue has been trapped. The vacuum can then be increased rapidly to 80kPa and maintained at this level.

4. Apply traction only with contractions and simultaneously encourage maternal expulsive effort.

5. There should be descent with each pull 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.

<u>When to discontinue ventouse delivery:</u>
If there is minimal descent with the first two pulls of a vacuum, consider if:

- the application is suboptimal
- the fetal position has been incorrectly diagnosed
- 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 if there are two cup ‘pop offs’.

The use of sequential instruments is associated with an increased risk of trauma to the infant and of OASI (obstetric anal sphincter injury). However, the operator must balance the risks of a Caesarean section following failed vacuum extraction with the risks of forceps delivery following failed vacuum extraction (RCOG 2020). Inform the neonatal team of any sequential instrument use.

8. Forceps delivery

Mid or low cavity forceps may be used to deliver a direct OA (or occasionally direct OP) postion.
Kiellands rotational forceps will only be used following discussion with the on-call consultant. Unless the doctor is experienced and competent in the use of Kiellands forceps he/she will be supervised. Kiellands forceps will only be applied if the woman has an epidural or spinal anaesthetic.
Forceps blades must only be applied between contractions. Moderate traction is usually applied in association with maternal effort during contraction. Descent is expected with each pull.

When to discontinue forceps delivery:
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
If there is minimal descent with the first two pulls consider if:

- the application is suboptimal
- the fetal position has been incorrectly diagnosed
- 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 if birth is not imminent after 3 pulls

Prepare for an impacted fetal head at caesarean, use a fetal pillow and recognised manoeuvres (see 'impacted fetal head' guideline)
Alert neonatal team – increased morbidity for baby

9. Episiotomy and assisted vaginal birth

- Discuss mediolateral episiotomy with the woman as part of the consent process
- Undertake episiotomy as clinically indicated – with forceps and in nulliparous women may reduce OASI
- Perform a 60 degree angle episiotomy when the head is distending the perineum

10. Postnatal Care;

1. Check perineum and vagina for lacerations. Perform perineal repair if required (refer to: Perineal Trauma, Management & Repair guideline)

2. The operator is responsible for the checking of the needle and swab count and for the disposal of sharps.

3. Give IV antibiotic prophylaxis single dose within 4hrs of birth– see Microguide and below.

4. Make full records of procedure in the woman's notes (BadgerNet).

5. Administer appropriate analgesia, usually Diclofenac PR and prescribe ongoing oral analgesia.

6. Bladder care: refer to – "Bladder Care Guideline" and "Labour Analgesia including Accidental Dural Puncture Guideline.

7. Debrief parents (ideally operating obstetrician)

A single dose of intravenous Cefuroxime1.5gm and Metronidazole 500mg as soon should be administered as soon as possible and no more than 4h after giving birth. The ANODE trial utilised Co-amoxyclav and was limited to women who were not allergic to penicillin. However, the results are likely to be comparable if antibiotics with a similar spectrum of activity are used. Based on local antibiotic stewardship the above are recommended. Please refer to Microguide – obstetrics and gynaecology surgical prophylaxis and for women with severe penicillin allergy.

11. References

1. RCOG Green Top Guideline No 25 Assisted Vaginal Birth April 2020
2. RCOG Operative Vaginal delivery (Consent Advice No.11) Published 2010 https://www.rcog.org.uk/en/guidelines-research- services/guidelines/consent-advice-11/
3. Knight M et al Prophylactic antibiotics in the prevention of infection after operative vaginal delivery (ANODE): a multicentre randomised controlled trial. Lancet 2019;393:2395–403
4. RCOG patient information assisted birth. Assisted vaginal birth (ventouse or forceps) (rcog.org.uk)

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