

1. Introduction and who the guideline applies to:

This guideline applies to all members of staff within the Maternity Unit who provide peripartum care for patients undergoing instrumental vaginal delivery. It is an adaptation of the RCOG Green Top Guideline on Operative (Instrumental) Vaginal Delivery.

Related documents:

Consent to examination or treatment
Resuscitation of the newborn at birth
Bladder care during and after labour and delivery
Perineal or genital trauma following childbirth – identification and repair
Management of Surgical Swabs, Instruments, Needles and Accountable Items
Safer Surgery Policy

What's New:

- **Hyperlinks added to related documents.**
- **Vacuum extraction lowered from 36 to 32 weeks gestation. Use with caution between 32 and 36 weeks.**
- **Prophylactic antibiotics should be given to all patients following an instrumental delivery.**
- **Indications for an instrumental delivery updated.**
- **Failure rates updated.**
- **If the fetal head is at the perineum a further 3 gentle pulls using vacuum-assisted birth to ease the head out of the perineum can be used**
- **Maternal and Perinatal outcomes added in.**
- **VTE risk assessment should be performed following an instrumental delivery.**

Background:

Operative vaginal delivery carries a risk of morbidity for both the mother and the baby, particularly where rotational procedures are performed, although with careful practice overall rates of morbidity are low. Additionally, there has been an increase in litigation relating to instrumental delivery.

The goal should be to minimise the need for operative vaginal delivery and where such delivery is indicated, to minimise the risk of morbidity to both mother and baby. Obstetricians should be confident and competent in the use of both vacuum extractor and forceps, and should be able to safely conduct rotational and non-rotational deliveries. Where possible, steps should be taken to reduce the likelihood of patients requiring an instrumental delivery.

These steps should include¹

- :
- Offering all patients continuous support during labour
- The use of a partogram
- Use of upright or lateral positions in second stage of labour without an epidural or lying down lateral positions with an epidural
 - Extreme caution* should be used in multiparae
 - Oxytocin augmentation should not be started without an assessment by an experienced Obstetrician.
- Passive 2nd stage/Delayed pushing in primiparae with an epidural (1-2 hours after diagnosis of second stage)

A standard classification of instrumental delivery should be used:

Classification of operative vaginal delivery (ACOG 2015)⁷

Term	Definition
Outlet	<ul style="list-style-type: none">- Fetal scalp visible without separating labia- Fetal head has reached the perineum- rotation not exceeding 45 degrees
Low	<ul style="list-style-type: none">- Leading point of presenting part (skull, not caput) is at station spines +2 or lower, but not on the perineum- Subdivisions:<ul style="list-style-type: none">a) Rotation 45 degrees or less (non-rotational)b) Rotation greater than 45 degrees
Mid	<ul style="list-style-type: none">- Fetal head is no more than 1/5 palpable per abdomen- Leading point of skull is at spines 0 or +1 but not above the spines- Subdivisions:<ul style="list-style-type: none">a) Rotation 45 degrees or less (non-rotational)b) Rotation greater than 45 degrees

2. Recommendations:

1. The procedure should only be carried out by an appropriately trained or supervised clinician
2. Careful clinical assessment by a trained operator should be performed before every operative vaginal delivery
3. The indication for operative vaginal delivery should be documented in the patient's health record by the clinician performing the delivery
4. Vacuum extraction should be avoided below 32 weeks gestation and used with caution from 32 weeks to 36 weeks gestation, or where there is an increased risk of fetal haemorrhage
5. Operative vaginal deliveries with a higher risk of failure should be performed as 'trials' in theatre where immediate recourse to Caesarean section is possible
6. The operator should choose the instrument most appropriate to clinical circumstances and their level of skill
7. Operative delivery should be abandoned when:
 - there is no evidence of progressive descent with each pull or
 - delivery is not imminent following three contractions, with a correctly applied instrument and an experienced operator
8. Paired cord blood samples should be obtained and results recorded following all attempts at operative vaginal delivery
9. Perineum and lower vagina should be formally assessed for trauma and sutured in accordance with the "[Perineal or Genital Trauma following Childbirth – Identification and Repair](#)" guideline. All items used during invasive procedures must be accounted for
10. Following an operative vaginal delivery, patients should be assessed for risk factors for thromboembolism
11. Appropriate analgesia should be offered during and after operative vaginal delivery
12. The timing and volume of the postnatal first void urine should be documented
13. The woman should be made aware of the indication for the operative delivery and management of any complications prior to discharge
14. Any operative delivery must be adequately documented in the patient's health care record in addition to the E3 electronic system. This includes abandoned/failed instrumental delivery
15. A dose of prophylactic antibiotics should be given to all patients who have had an instrumental delivery

Recommendation One:

The procedure should only be carried out by an appropriately trained or supervised clinician¹.

- Obstetric trainees should have their competence in instrumental delivery assessed (e.g. OSATS) prior to conducting unsupervised deliveries
- The complexity of the delivery is related to its classification (see above). Complex, mid cavity or rotational deliveries, irrespective of the instrument used, must be performed by an operator who has received adequate training in these procedures
- An experienced operator should be present from the outset for mid cavity or rotational deliveries.

Recommendation Two:

A careful clinical assessment by a trained operator should be performed before any operative vaginal delivery¹.

- Abdominal and vaginal examination must always be performed as part of the assessment.
- The following are prerequisites for a safe vaginal delivery.
 - 1) There should be no maternal or fetal contraindication to operative vaginal delivery or the use of a particular instrument (e.g. ventouse in prematurity <32 weeks, caution 32-36 weeks)
 - 2) The head should be $\leq 1/5$ palpable per abdomen
 - 3) Confirm the fetus is presenting by the vertex (although forceps delivery may be considered in a mento-anterior face presentation by a senior obstetrician)
 - 4) The cervix should be fully dilated and membranes absent
 - 5) The exact position of the fetal head should be determined and ultrasound should be used if any uncertainty following clinical examination
 - 6) There must be no evidence of obstructed labour
 - 7) Maternal informed consent, even if verbal, should be obtained and documented in the notes. Where the delivery is being performed as a trial in theatre, written consent should be obtained where possible^{1,8}.
 - 8) Appropriate analgesia should be in place (regional or pudendal block, depending on urgency and anticipated complexity of delivery)
 - 9) The maternal bladder should have been emptied recently- where an indwelling catheter is present the balloon should be deflated during delivery
 - 10) There should be a back-up plan in case of failed instrumental delivery, with adequate staffing including availability of anaesthetist

11) Personnel should be present who are competent in neonatal resuscitation

Recommendation Three:

The indication for operative vaginal delivery should be documented in the patient's health record by the clinician performing the delivery ^{1,8}.

- Operators should be aware that no indication is absolute and should be able to distinguish 'standard' from 'special' indications.
- The aim of instrumental delivery is to shorten the second stage. There is some evidence that maternal morbidity may increase significantly after three hours in the second stage. The timing of intervention needs to involve balancing the risks and benefits of continuing active expulsive maternal efforts against those of instrumental delivery.

Indications for operative vaginal delivery:

Type	Indication
Fetal	Suspected fetal compromise (CTG pathological, abnormal FBS result, thick meconium)
Maternal medical	Medical indications to avoid Valsalva, such as Cardiac disease Class III or IV, cerebrovascular disease (e.g. uncorrected CV malformations, myasthenia gravis, spinal cord injury, proliferative retinopathy)
Labour-Delay in the second stage	<p>Nulliparae: Lack of continuing progress in the second stage (total of passive and active second stage) of three hours with regional anaesthesia, or two hours without regional anaesthesia</p> <p>Multiparae: Lack of continuing progress in the second stage (total of passive and active second stage) of two hours with regional anaesthesia, or one hour without regional anaesthesia</p> <p>Maternal exhaustion or distress</p>

Recommendation Four:

Vacuum extraction should be avoided below 32 weeks gestation and used with caution from 32 weeks to 36 weeks gestation, or where there is an increased risk of fetal haemorrhage^{1, 2, 7}

- Vacuum extraction has potential added neonatal morbidity in the presence of prematurity. Evidence suggests it should be avoided below 32 weeks gestation
- Between 32 and 36 weeks gestation vacuum extraction should be used with caution as there is an increased risk of subgaleal haemorrhage, intracranial haemorrhage and scalp trauma when compared with forceps but comparable long-term neurological outcomes
- Difficult operative delivery should be avoided where fetal haemorrhage risk is potentially increased, such as maternal ITP / unexplained thrombocytopenia etc.
- Difficult operative delivery should be avoided in patients with blood borne infections.

Recommendation Five:

Operative vaginal deliveries with a higher risk of failure should be performed as 'trials' in theatre where immediate recourse to Caesarean section is possible¹.

Higher failure rates are associated with:

- Maternal BMI \geq 30
- Short maternal stature
- Clinically big baby / EFW > 4000g
- Head circumference over the 95th centile
- Occipito-posterior position and Occipito-transverse
- Station not below spines / 1/5 of head palpable abdominally
- Prolonged labour

In the presence of two or more of these risk factors (or other clinical uncertainty) a trial of instrumental delivery in theatre should be considered.

Where operative vaginal delivery is being performed in the presence of suspected fetal compromise, the risk of failed delivery in the room needs to be balanced with the delay in transfer time when conducting the delivery in theatre. As an aid to communication, the classification of urgency of caesarean section should be used for all operative deliveries, vaginal as well as abdominal. This should be communicated to all the MDT team involved with the patients care.

It is good practice to classify all instrumental births (ref EBC) at the time of the decision to deliver, although it is recognised that instrumental deliveries in the delivery room usually proceed with minimal or no delay. However, where delivery is not achieved and transfer to theatre or second instrument is subsequently indicated an awareness of the urgency is helpful to all involved.

Classification of Instrumental Delivery

Take into account the condition of the woman and the unborn baby when making decisions about rapid delivery.

GRADE 1: Immediate threat to the life of the women or fetus (as soon as possible or within 30 minutes)

GRADE 2: Maternal or fetal compromise that is not immediately life threatening (as soon as possible or within 75 minutes)

The time the decision for instrumental delivery was made should be documented in the patient's healthcare record. The safety of the mother is paramount and this should be prioritised above an exact decision to delivery interval.

Reasons for any deviation to this time frame, where applicable, should also be documented in the patient's electronic healthcare record.

Recommendation Six:

The operator should choose the instrument most appropriate to clinical circumstances and their level of skill ^{1, 2, 4}.

- Forceps and vacuum are associated with different risks and benefits. Vacuum extractor should be avoided below 32 weeks gestation and where fetal bleeding risk is increased.

Vacuum extractor compared with forceps is:

More likely to fail at achieving vaginal delivery	OR 1.7; 95% CI 1.3–2.2
More likely to be associated with cephalhaematoma	OR 2.4; 95% CI 1.7–3.4
More likely to be associated with retinal haemorrhage	OR 2.0; 95% CI 1.3–3.0
More likely to be associated with maternal worries about baby	OR 2.2; 95% CI 1.2–3.9
Less likely to be associated with significant maternal perineal and vaginal trauma	OR 0.4; 95% CI 0.3–0.5
No more likely to be associated with delivery by caesarean section	OR 0.6; 95% CI 0.3–1.0
No more likely to be associated with low 5-minute Apgar scores	OR 1.7; 95% CI 1.0–2.1
No more likely to be associated with the need for phototherapy	OR 1.1; 95% CI 0.7–1.8.

Risks are summarised below:

Maternal outcomes:

Operative vaginal delivery V4

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Approved by: Maternity Service Governance Group

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Please note that this may not be the most recent version of the document; a definitive version is in the Policy and Guidelines Library

- 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.

Recommendation Seven:

Operative delivery should be abandoned where there is no evidence of progressive descent with each contraction, or where delivery is not imminent following three contractions, with a correctly applied instrument and an experienced operator ¹.

- The bulk of malpractice litigation results from failure to abandon the procedure at the appropriate time, particularly the failure to avoid prolonged, repeated or excessive traction efforts in the presence of poor progress.
- Sequential application of instruments is associated with a higher morbidity (risk of intracranial haemorrhage is 1 in 256 deliveries for two instruments compared to 1 in 334 for failed single instrument proceeding to caesarean section). The use of forceps after failed vacuum extraction must therefore be judiciously balanced with the risk of a second stage Caesarean section. This decision should be made by an experienced Obstetrician ^{1, 5}.
- Operative vaginal delivery should be abandoned and caesarean section considered where there is no evidence of progressive descent with moderate traction during each contraction or where delivery is not imminent following three contractions of a correctly applied instrument by an experienced operator. If the fetal head is at the perineum a further 3 gentle pulls using vacuum-assisted birth to ease the head out of the perineum can be used.

- The total number of contractions over which instrumental delivery was conducted should be confirmed after the birth of the baby by the Obstetrician and the Midwife and documented in the operative delivery notes.

Recommendation Eight:

Paired cord blood samples should be obtained and recorded after all attempts at operative vaginal delivery ¹.

- Adverse events, including failed forceps or vacuum extraction, birth trauma, term baby admitted to the neonatal unit, low Apgar score less than 7 at 5 minutes and cord arterial pH less than 7.1 should trigger an incident report and review, if necessary, as part of effective risk management processes.

Recommendation Nine:

The perineum and lower vagina should be assessed for trauma and sutured in accordance with the “[Perineal or Genital Trauma following Childbirth – Identification and Repair](#)” guideline. All items used during invasive procedures must be accounted for ¹.

- The swab and needle count is the responsibility of the operator
- All swabs must be counted aloud by the operator and the assistant (MCA, Midwife or Doctor) immediately prior to the procedure and this should be documented on the white board within the room by the assistant.
- Any swabs inserted into the vagina during the procedure must be:
 - Recorded on the whiteboard as individual items and not as part of the swab count
 - Secured to the sterile drapes with a theatre clip
- If at any time there is a change of operator the swab count must be confirmed prior to that person leaving the room and a handover performed using SBAR
- Following the procedure, **before leaving** the room, all swabs must be counted aloud again by the operator and the assistant and this should be documented in the health records by both members of staff
- The swab count **must** be correct before leaving the room.
- Where a vaginal pack is intentionally left in situ the “Bakri Intrauterine Balloon and Vaginal Pack In situ Form” must be completed and attached to the front of the woman’s hospital notes. The in

situ sticker must also be placed on every history page within the notes and on each page of the HDU chart. This is the responsibility of the operator who leaves the pack in. The pack must be removed prior to transfer to the postnatal ward

- Any unaccounted items must be documented on the white board in red and until proven otherwise it should be assumed that the item is in the wound. All swab bags and rubbish bags should be checked. If the item is still unaccounted for, the midwifery coordinator must be informed and actions taken as per UHL "[Management of Surgical Swabs, Instruments, Needles and Accountable items](#)" Policy.

Recommendation Ten:

Following an operative vaginal delivery, patients should be assessed for risk factors for thromboembolism ¹.

- A VTE risk assessment should be performed after an instrumental delivery, a midcavity or rotational assisted delivery scores 1 point on the UHL VTE risk assessment tool.

Recommendation Eleven:

Appropriate analgesia should be offered following operative vaginal delivery ¹.

- Analgesia should be prescribed on a regular basis, and should include Paracetamol and a NSAID (Diclofenac or similar) unless there are contraindications. This combination has been shown to be beneficial for perineal pain.

Recommendation Twelve:

The timing and volume of the first void urine should be documented. Post void residual should be measured if urinary retention is suspected ^{1,6}.

- Patients who have had a spinal or epidural top up for a trial of an instrumental delivery should be offered an indwelling catheter for the first 12-24 hours to avoid asymptomatic urinary retention (see [Bladder Care Guideline](#))

Recommendation Thirteen:

There is no evidence to support routine debriefing following an instrumental delivery, but the woman should be made aware of the indication for the operative delivery and management of any complications prior to discharge ¹.

- It is important that a discussion takes place following delivery with the patient to inform them of the indication for the operative delivery and any management of any complications prior to discharge.

Recommendation Fourteen:

Any operative delivery must be adequately documented in the patient's health care record. This includes abandoned/failed operative vaginal delivery ^{1,8}.

As a minimum, a timed, dated and signed entry of the following should be made (on the appropriate page in the health record and the E3 print out for operative delivery should be completed):

- Details of surgeon
- Details of supervisor where appropriate
- Informed consent
- Indication for operative delivery
- Time of decision and time of delivery
- Clinical assessment of patient
- Type of analgesia
- Description of the procedure, including
 - bladder care measures
 - the type of instrument used
 - More than one instrument used plus indication for dual instrumentation
 - Number of contractions / duration of instrument application until delivery.
- Where procedure abandoned, including reason
- Perineal trauma/episiotomy including suturing (the perineal repair page must be completed)
- Estimated blood loss
- Cord gases

PLEASE NOTE THAT DETAILS OF ATTEMPTED INSTRUMENTAL DELIVERY MUST BE DOCUMENTED ON THE APPROPRIATE PAGE EVEN WHEN YOU PROCEED TO CAESAREAN SECTION AFTER FAILED ATTEMPT AT INSTRUMENTAL DELIVERY.

Recommendation Fifteen:

A dose of prophylactic antibiotics should be given to all patients who have had an instrumental delivery ^{1,9}

- Refer to the [Antimicrobial Summary UHL Womens Guideline](#)

3. Education and Training:

All obstetric trainees should have an opportunity to attend the RCOG Operative Birth Simulation Training (ROBuST) day, and a Workshop on Perineal Repair.

Maternity care Assistants/Maternity Support Workers will complete the Maternity Care Assistant/Support worker Core Competency Package which includes safe practice in assisting with swab, instrument, needle and sundries count as outlined in the UHL policy Surgical Swabs Instruments Needles and Accountable - Management UHL Policy

Midwives will attend a Perineal Repair workshop during their Preceptorship time which will include safe practice in assisting with swab, instrument, needle and sundries count as outlined in the UHL policy Surgical Swabs Instruments Needles and Accountable - Management UHL Policy.

4. Supporting References:

- 1) RCOG Green-Top Guideline No 26 'Assisted Vaginal Birth', April 2020
- 2) Burlington DB. Food and Drug Administration Public Health Advisory: Need for CAUTION when using vacuum assisted delivery devices. Center for Devices and Radiological
- 3) Johnstone TA. Minimising risk: obstetric skills training. Clin Risk 2003;9:99–102.
- 4) Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Guidelines for Use of Rotational Forceps. College Statement No. C-Obs 13. Melbourne: RANZCOG; 2004 [www.ranzcog.edu.au/publications/ statements/Cobs13.pdf].
- 5) Gardella C, Taylor M, Benedetti T, Hitti J, Critchlow C. The effect of sequential use of vacuum and forceps for assisted vaginal delivery on neonatal and maternal outcomes. Am J Obstet Gynecol 2001;185:896–902.
- 6) Carley ME, Carley JM, Vasdev G, Lesnick TG, Webb MJ, Ramin KD, et al. Factors that are associated with clinically overt postpartum urinary retention after vaginal delivery. Am J Obstet Gynecol 2002;187:430–3.
- 7) Committee on Practice Bulletins – Obstetrics. ACOG Practice Bulletin No. 154: Operative Vaginal Delivery. Obstet Gynecol 2015;126:e56-65
- 8) Royal College of Obstetricians and Gynaecologists. Operative Vaginal Delivery. Consent Advice No. 11. London: RCOG; 2010
- 9) Liabsuetrakul T, Choobun T, Peeyananjarassri K, Islam QM. Antibiotic prophylaxis for operative vaginal delivery. Cochrane Database Syst Rev 2017;8:CD004455

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CONTACT AND REVIEW DETAILS

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Details of Changes made during review:

Hyperlinks added to related documents. Vacuum extraction lowered from 36 to 32 weeks gestation. Use with caution between 32 and 36 weeks. Prophylactic antibiotics should be given to all patients following an instrumental delivery. Indications for an instrumental delivery updated. Failure rates updated. Maternal and Perinatal outcomes added in. VTE risk assessment should be performed following an instrumental delivery.