

Perineal repair after childbirth

A Procedure and Standards tool to support Practice Development



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Introduction

NHS Quality Improvement Scotland (NHS QIS) was set up on 1 January 2003. Its vision is an NHS which achieves excellence in the care of every patient every time. Its purpose is to lead the use of knowledge to promote improvement in the quality of healthcare for the people of Scotland.

NHS QIS perform three key functions:

- we provide advice and guidance on effective clinical practice, including setting standards
- we drive and support implementation of improvements in quality, and
- we assess the performance of the NHS, reporting and publishing our findings.

The Nursing and Midwifery Practice Development Unit was established by the Chief Nursing Officer in December 1999 and in 2003 the Practice Development Unit (PDU) became a unit within NHS QIS. The remit of the unit when it was established was to ensure that:

'Practice Development goes ahead on a planned and cohesive basis and that lessons learned in any area – clinical or geographical – are shared across the country to the benefit of patient care.'

The unit influences the culture of practice by acting as a catalyst for change and providing support for practice development by:

- Promoting and facilitating knowledge transfer
- Translating evidence into practice
- Responding to national/local healthcare priorities
- Ensuring best practice is recognised and shared across the country
- Promoting behaviours focussed on improving the quality of care.

The PDU currently utilises a range of approaches to support practice and role development to enable individuals, teams and organisations to improve the quality of health care and the patient experience in a modernising NHS.

These include:

- Development and dissemination of Best Practice Statements
- Dissemination at conferences and events to share best practice

- Master classes
- Networks and networking
- Communities of practice
- Specific projects to support improvements and/or developments in practice.

A national practice development midwives network was established in 2004 by the PDU of NHS QIS. The aim of the network is to offer facilitated networking between midwives involved in practice development across Scotland including an annual event focusing on specific practice development issues. Members of the network were asked in late 2004 to identify priority areas for clinical improvement. The topic of perineal trauma and repair was identified as a high priority and as a result was selected to be the central theme for the first meeting of the practice development midwives network in April 2005.

Perineal Trauma

Perineal trauma is defined as injury to the labia, vagina, urethra, clitoris, perineal muscles or anal sphincter.¹ It can occur spontaneously during a vaginal birth, caused by trauma during an assisted delivery or by a surgical incision (episiotomy).

In Scotland approximately 45,000 women per year will sustain some form of perineal trauma as a result of a vaginal birth. Perineal damage can have a major adverse impact on women's short and long-term health. Incorrect repair, failure to recognise the extent of trauma and inadequate pain relief during repair can lead to major physical, psychological and social problems. The assessment and management of perineal trauma is a routine part of maternity care with the majority of first and second-degree repairs being performed by midwives. While there are national guidelines on the repair of perineal trauma there is evidence to suggest that variations in practice and in training still exist.

Current Guidelines

The current national guidelines stipulate that:

- Non-suturing

The practice of leaving second degree perineal tears unsutured is associated with poorer wound healing and non significant differences in short-term discomfort.^{1,2}

- Method of repair

The use of a continuous subcuticular technique for perineal skin closure is associated with less short-term pain than techniques employing interrupted sutures.^{3,4,5}

A loose, continuous non-locking suturing technique used to appose each layer is associated with less short-term pain compared with the traditional interrupted method.¹

The use of a two-layer procedure of perineal repair, where the skin is apposed but not sutured, is associated with an increase in wound gaping up to 20 days following birth but less dyspareunia at 3 months postpartum than a three-layer technique involving skin closure.²

Episiotomy

A policy of restricted use of episiotomy for spontaneous vaginal birth has a number of benefits compared to routine episiotomy policies. There is less posterior perineal trauma, less suturing and fewer complications, no difference for most pain measures and severe vaginal or perineal trauma.⁶

Episiotomy should be performed if there is a clear clinical need such as instrumental delivery or suspected fetal compromise.^{1,7}

A national practice development initiative: The Rapid Cycle Change Model

The concern that national guidance was not being adopted uniformly across Scotland was highlighted at the Scottish practice development midwives network event in 2005. To help address this gap between research and practice the PDU of NHS QIS facilitated the application of a rapid cycle change model (RCCM) to assist practice development midwives in cascading the latest evidence into practice.

To evaluate the effectiveness of this RCCM, the NHS QIS PDU commissioned an audit of perineal trauma and repair practice across Scotland in December 2006. The audit, carried out by the Centre for Integrated Healthcare Research, confirmed that perineal repair practice change is at different stages of development across Scotland.⁸ See www.nhshealthquality.org

A total of 20 maternity units were involved in the audit with 715 case notes audited. The audit sought to identify the extent to which practice has developed since the PDU practice development initiative in April 2005. The audit revealed an increase in the use of continuous suturing techniques of repair of the muscle layer rather than interrupted suturing from 16% in 2004 to 60% in 2007. Likewise, an increase in subcuticular suturing technique to the skin had increased from 41% in 2004 to 70% in 2007. The number of 2nd degree trauma being left unsutured fell from 11% in 2004 to 5% in 2007.

However, it was clear from the audit that practice change to evidence-based practice was by no means universal. The audit included a questionnaire among midwives across Scotland about their practice. Of the 152 midwives who responded to the questionnaire and who regularly undertook perineal repair, only 47% stated that they used the new method exclusively, 28% were using a combination of the old and new technique and 25% were exclusively using the old technique.

National procedure and Standards Document

The practice development midwives' network (now named the midwifery practice development network) identified that a national procedure and standards document would be of benefit in further encouraging a consistent evidence-based approach to perineal repair. The members of the network have developed this guidance document with support from the PDU. The aim of this document is to encourage the adoption of evidence-based practice across Scotland's maternity units. This document includes: a section on the recommended procedure for repair of trauma; a standards section setting out clear standards for maternity care professionals in the prevention and treatment of perineal trauma; and finally a comprehensive literature search of the current evidence in this area, upon which the procedure and standards are based.

The PDU aims to support maternity units in the implementation of this guidance through supporting a national training programme for maternity care professionals that have not yet received training in the new evidence based method during 2008 and 2009.

Perineal repair

Definitions

Perineal or genital trauma can occur during childbirth caused by either tearing or episiotomy. Episiotomy is a surgical incision of the perineum which is carried out prior to the delivery of the baby.

Classification of Perineal Trauma¹

This classification allows differentiation to be made between injuries to the external anal sphincter (EAS), internal anal sphincter (IAS) and anal epithelium.

Degree	Trauma
First	Injury to the skin only
Second	Injury to the perineum involving perineal muscles but not involving the anal sphincter
Third	Injury to the perineum involving the anal sphincter complex EAS and IAS 3a. Less than 50% of EAS thickness torn 3b. More than 50% of EAS thickness torn 3c. IAS torn
Fourth	Injury to perineum involving the anal sphincter complex (EAS and IAS) and anal epithelium

Assessment of Perineal Trauma

Before assessing for genital trauma following childbirth, the healthcare professional will:

- Explain to the woman what they plan to do and why
- Offer inhalational analgesia
- Ensure good lighting
- Position the woman so that she is comfortable and so that the genital structures can be seen clearly.⁷

The initial examination will be performed gently and with sensitivity and may be done in the immediate period following the birth.

If genital trauma is identified following birth, further systematic assessment should be carried out by an experienced practitioner trained in the recognition and management of perineal tears and should include a rectal examination.⁹

Systematic assessment of genital trauma will include:

- Further explanation of what the healthcare professional plans to do and why
- Confirmation by the woman that tested effective local or regional analgesia is in place
- Visual assessment of the extent of perineal trauma to include the structures involved, the apex of the injury and assessment of bleeding
- A rectal examination to assess whether there has been any damage to the external or internal anal sphincter if there is any suspicion that there is damage to the perineal muscles.⁷

If there is any uncertainty about the nature or extent of trauma sustained, the woman should be referred to a more experienced healthcare professional. Research has shown that the number of 3rd degree tears detected in one maternity unit increased when two people checked every perineum.¹⁰

The systematic assessment and its results should be fully documented.

All relevant healthcare professionals should attend training in perineal/genital assessment and repair and ensure that these skills are maintained.

Identification of Anal Sphincter Trauma:

- Prior to carrying out a rectal examination the procedure and reason for the examination should be explained to the woman and verbal consent obtained.
- Clinicians need to be aware of the risk factors for obstetric anal sphincter injury which include a birth weight of over 4kg, persistent occipitoposterior position, nulliparity, induction of labour, epidural analgesia, second stage longer than one hour, shoulder dystocia, midline episiotomy and forceps delivery.⁹
- On visual examination, the absence of 'puckering' around the anterior aspect of the anus may suggest anal sphincter trauma.

- On digital examination the clinician should establish if the perineal trauma reaches to the anal margin.
- The clinician inserts the index finger into the woman's rectum and asks her to squeeze. If the external anal sphincter is damaged the separated ends can be seen to retract backwards. As regional analgesia may affect muscle power in the perineum, the muscle bulk of the sphincter should also be palpated between finger and thumb.
- It may be more difficult to identify internal anal sphincter damage.

Third and Fourth degree tears and other difficult trauma should be repaired by the experienced operator in theatre under regional or general anaesthesia.

Suture Material

The use of a rapidly absorbed synthetic suture, such as Vicryl Rapide, is associated with a significant reduction in perineal pain, analgesia used, dehiscence, resuturing and reduction in suture removal when compared with standard absorbable synthetic material.¹

Method of Choice for the Repair

A continuous non-locking suturing technique used to appose each layer (vaginal tissue, perineal muscle and skin) is associated with less short term pain compared with the traditional interrupted method.^{3,4,5} Using a subcutaneous method to the skin avoids the collections of nerve endings found in the superficial skin layer; in addition, the reactionary oedema is transferred through the whole length of the suture rather than interrupted sutures which are traverse across the wound.¹

Preparation for Perineal Repair

Following the systematic assessment of the trauma, the practitioner should discuss with the woman and her partner the details of the perineal repair procedure required and obtain and document her consent prior to commencement.

- The woman should be assisted into a comfortable position that allows good visualisation of the genital structures. It is not always necessary to place women in the lithotomy position. If lithotomy position is required, two practitioners must assist the woman into lithotomy so that both legs are manoeuvred at the same time. The practitioner should ensure that the woman's legs are comfortable and there is no excessive pressure exerted on the legs or hips.

- The baby can continue with skin-to-skin contact throughout the procedure; support can be given from her partner to assist this.
- A plastic apron and protective eyewear should be used by the operator for all perineal repair procedures.
- The operator's hands should be washed to Level 3 surgical hand wash.
- A sterile gown and gloves should be worn.
- The vulva and perineal area should be cleansed with tap water.
- Sterile drapes and leggings should be placed over the perineal area and legs to create a sterile field.
- The perineal area should be systematically assessed using an effective light source. The degree of trauma requiring repair should be assessed prior to suturing and it should be established that the degree of repair anticipated is within the capabilities of the practitioner.
- A vaginal tampon should only be inserted if necessary, to provide a clearer view of the area to be sutured. The tampon should be inserted into the vagina above the level of the apex of the tear and the tab clipped. It is acknowledged that on occasions the tampon may be insufficient in arresting the bleeding and allowing the operator a clear view of the area to be repaired. If on these occasions it is necessary to place a swab within the vagina, both the operator and assistant should take a note of this and the swab accounted for in the final swab count. Only x-ray detectable swabs should be used.

Assistant

Observing sterile field, open and place onto the suture pack or tray the following items:

- 20 ml syringe
- Needles 19 g and 21g
- Suture material, Vicryl Rapide
- Discarda Pad or other appropriate safe disposal system for sharps
- Check 20 ml vial of 1% lidocaine (lignocaine) with operator prior to use

Operator

- Explain to the woman the steps of the procedure throughout.
- Using syringe and a 19g needle, aspirate lidocaine into a 20ml syringe.
- Detach the 19g needle and place on Discarda Pad.
- Attach 21g needle for infiltration.
- Before suturing begins, a swab and needle count must be performed and recorded within case records. The operator is accountable for all swabs, sutures and needles before, during and after the procedure.

Pain Relief during Suturing

If the woman has an epidural, ensure that it provides adequate pain relief. If it does not, then local anaesthesia may be used in addition.

The perineum is infiltrated using lidocaine 1%. This is generally prescribed using a patient group direction. The local patient group direction should be referred to. The total amount of lidocaine 1% should not exceed 20mls (including infiltration for episiotomy) which should provide effective analgesia for the woman.

If the woman reports inadequate pain relief at any point this should immediately be addressed.⁷

Using an aseptic technique, lidocaine 1% is infiltrated into the four aspects of the trauma. The needle is inserted from the fourchette along the under surface of the vaginal mucosa to the apex of the area to be repaired. The syringe is then withdrawn slightly to ensure that the needle is not in a blood vessel and lidocaine 1% is then injected as the needle is withdrawn along the vaginal mucosa. Without withdrawing the needle completely at the fourchette, the needle is turned downwards and inserted along the full length of the perineal muscle to the distal end of the area to be repaired. Again ensuring that the needle is not in a blood vessel, Lidocaine 1% is injected as the needle is withdrawn. The process is then repeated on the opposite side.

If blood is withdrawn, the needle should be repositioned before injecting to ensure that it is not in a blood vessel.

Perineal repair should not be commenced until tested effective analgesia is in place.

Procedure For Perineal Repair

Purpose of Repair

- To control bleeding
- To prevent infection
- To assist wound healing by primary intention. Primary intention healing is usually rapid and scarring minimal, providing there is no infection or excessive bleeding/haematoma.
- If the wound is left unsutured it will heal by secondary intention. Secondary intention healing occurs through the formation of granulation tissue, which will contract to form scar tissue.

Non-suturing:

Two small randomised controlled trials and two small retrospective studies comparing suturing with non-suturing of first and second degree trauma found no significant difference in perineal pain. Women in the sutured group had good wound approximation at six weeks post partum.¹¹ Lundquist et al ¹² found a non-significant increase in short-term discomfort in the non-sutured group but no difference in wound healing between groups.¹² More good evidence is required to inform clinical practice regarding the short and long term effects associated with suturing versus non- suturing.

Practitioners must be cautious about leaving trauma unsutured unless it is the woman's explicit wish and this should be documented.

Principles of Perineal Repair

Regardless of the technique, the principles are the same:

- Check the extent of the trauma by thoroughly examining the vagina and perineum to establish the extent of the trauma, this is best achieved using x-ray detectable swabs. Cotton wool balls **must not be used**. A rectal examination should be performed as part of the assessment.
- Suture as soon as possible after delivery - it is less painful and reduces the risk of infection. Following a water birth it is advisable to delay suturing for 1 hour following the birth.
- Good lighting is essential to carry out the repair to visualise and identify the structures involved.
- Ask for assistance if in doubt to the extent of the trauma or structures involved.
- Handle tissue gently using non-toothed forceps.
- Ensure good anatomical restoration and alignment to facilitate healing.
- Close all dead space –ensure haemostasis and prevent infection.
- Use minimal amount of suture material, and do not over tighten suture or knots, this may impede healing.
- Following the repair a rectal examination should be performed to ensure no suture material has been inserted through the rectal mucosa.
- Advise women about perineal hygiene and pelvic floor exercises.

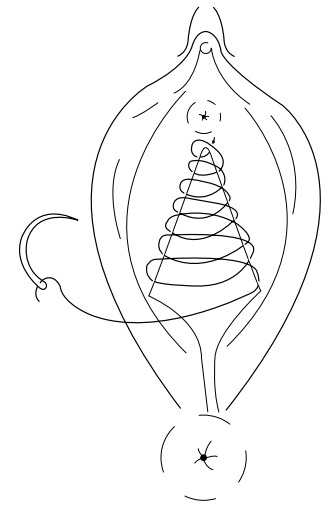
Method of Repair

A loose continuous non-locking suturing technique used to appose each layer, is associated with less short-term pain compared with the traditional interrupted method.¹

Vicryl Rapide 2/0 is a suitable suture material for perineal repair.

Step 1 Suturing the vagina

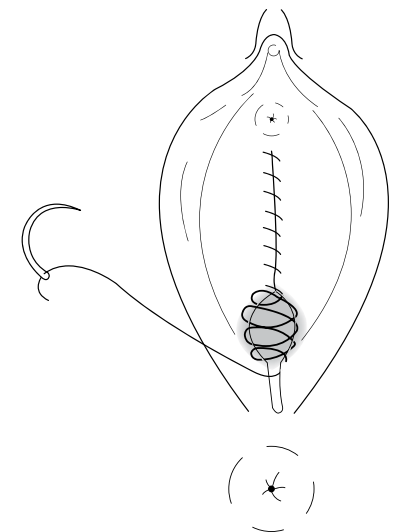
- Identify the apex.
- Insert the anchoring suture 0.5 cm above the apex.
- Repair the vaginal wall with a continuous non-locking stitch with approximately 0.5 cm between each stitch.
- Continue to suture until the hymenal remnants are reached, ensuring sutures are not placed in the hymenal remnants.
- Place the needle behind the hymenal remnants and emerge in the centre of the perineal muscle.



Step 2 Suturing the perineal muscle

- Check the depth of the trauma.
- Repair the perineal muscles in one or two layers with the same continuous stitch.
- Ensure the muscle edges are apposed carefully leaving no dead space.
- Visualise the needle between sides to prevent stitches being inserted into the rectal mucosa.
- On completion of the muscle layer, the skin edges should align so that they can be brought together without tension.

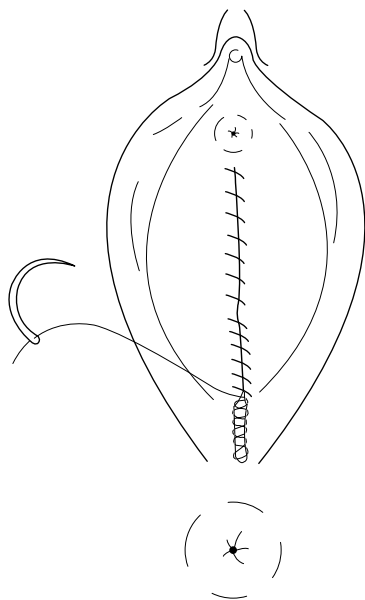
Step 2 Deep muscle layer



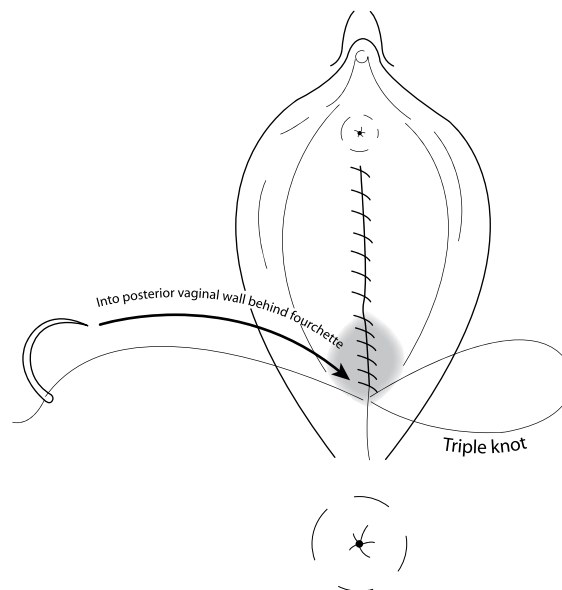
Step 3 Suturing the skin

- Reposition the needle
- At the inferior end of the wound commence suturing the skin from the apex of the wound
- Stitches are placed below the surface of the skin, the point of the needle should be repositioned between each side, so that it faces the skin edge being sutured.
- Continue taking bites of tissue from each side until the superior wound edge is reached.
- Sweep the needle behind the fourchette back into the vagina. Pick up a small amount of vaginal tissue to tie off the stitch and cut (the knot is tucked into the vagina to minimise discomfort). Alternatively, the repair may be completed using the "Aberdeen" knot. The 'Aberdeen knot' is a method to secure that ensures that the knot is completely inverted in the mucosa with minimal knot bulk at the surface.

Step 3a Skin sub cutaneous stitch



Step 3b Aberdeen knot



Immediate Post operative care

- Inspect the repair to check that haemostasis has been achieved. NB – an excessive amount of sutures may well cause severe discomfort in the puerperium and beyond. Only carry out the required amount of suturing to achieve haemostasis
- Remove the vaginal tampon, if used, and account for all instruments, swabs and needles – discard sharps safely
- Perform rectal examination following completion of the repair to detect any suture material which may have been accidentally inserted through the rectal mucosa
- Diclofenac Acid 100mgs may be given PR, if no contraindications
- Remove woman's legs from lithotomy position
- Make the woman comfortable
- Document repair in the Scottish Woman-Held Maternity Record and sign prescription for local anaesthetic (PGD)
- Any difficulty experienced in suturing should be documented in the labour notes, eg excessive bleeding, friable tissue, bruising, etc.
- Explain the extent of trauma and advise woman regarding hygiene and pain relief associated with perineal trauma
- Document procedure in the woman's notes remembering to include in notes that procedure explained and consent obtained.

Standard for Perineal Care by Maternity Care Providers: prevention of trauma, performance of episiotomy, repair and aftercare.

Statement	Rationale	Local demonstration	Local monitoring
Midwives have knowledge of the anatomy and physiology of the pelvic floor.	To minimise perineal trauma, and facilitate appropriate repair and aftercare.	Availability of theoretical instruction and supervised practice, within a perineal repair education programme. All midwives involved in intrapartum care should attend.	Monitor attendance via training log
Midwives have knowledge of the mechanisms of labour and the effect of maternal and fetal position on perineal trauma.	To minimise perineal trauma.	Theoretical instruction and supervised practice.	Monitor attendance via training log
Women are informed of the benefits of antenatal perineal massage. Women are informed how to perform perineal massage.	Digital perineal massage from 34 weeks reduces perineal trauma. For every 16 women who carry out perineal massage, one fewer will receive perineal suturing after birth. ¹³	Advice given and recorded in SWHMR at antenatal appointment. Included in antenatal education classes Information and leaflets provided to women about perineal massage.	SWHMR audit Included in antenatal education syllabus Audit of information routinely given to all women antenatally

Statement	Rationale	Local demonstration	Local monitoring
<p>All women are informed of birth positions which may reduce perineal trauma.</p> <p>Women are discouraged from taking up supine and semi-supine positions in the second stage of labour.</p>	<p>All fours, lateral and standing positions for labour may decrease the likelihood of malposition, decrease duration of second stage, and reduce risk of perineal trauma.^{14,15,16}</p>	<p>Included in birth plan</p> <p>Advice given at antenatal appointment</p> <p>Included in antenatal education classes</p> <p>Information and leaflets provided to women about labour positions</p> <p>Birth environment provided which encourages positions other than supine on the bed</p> <p>Record in SWHMR when women adopt positions other than supine on the bed for labour and birth</p>	<p>Birth plan audit</p> <p>SWHMR audit</p> <p>Included in antenatal education syllabus</p> <p>Audit of information routinely given to all women antenatally</p> <p>Audit of birth environment</p> <p>Audit of SWHMR labour record</p>
<p>Women with a previous history of severe perineal trauma should be informed that their risk of repeat severe perineal trauma is not increased in a subsequent birth, compared to women having their first baby.</p> <p>Episiotomy should not be offered routinely at vaginal birth following previous third or fourth degree trauma.</p>	<p>The rate of repeat severe trauma is similar to the original incidence.</p>	<p>Documentation in SWHMR antenatal appointments and birth plan.</p>	<p>SWHMR audit</p>

Statement	Rationale	Local demonstration	Local monitoring
<p>Midwives should ensure that they are sensitive and informed about the issue of female genital mutilation.</p> <p>Routine enquiry about FGM should be made with all women in the antenatal period and appropriate onward referral made.</p> <p>For women with type 3 or 4 infibulated genital mutilation which has not been de-infibulated antenatally, a referral to a senior obstetrician should be made in labour to consider intrapartum de-infibulation.</p> <p>It is illegal for health professionals to 're-infibulate' post birth, though other perineal trauma occurring at the birth such as episiotomy or perineal trauma should be repaired as normal.¹⁷</p>	<p>The prevalence of FGM remains high in around 28-30 African and Middle Eastern countries.</p> <p>Women with type 1 or type 2 simple circumcision and excision will not require treatment but should have referral to an obstetrician for assessment. This kind of FGM will have little impact on delivery.</p> <p>Women with type 3 or 4 infibulated genital mutilation should have a specialist referral. Women can be offered 'de-infibulation' antenatally to reduce the risks in labour.</p> <p>The CEMACH report 2007 identified that women with female circumcision were at increased risk in labour. FGM doubles the chances of women dying in childbirth.¹⁸</p>	<p>Record of discussion, information, referral and care given in antenatal SWHMR.</p>	<p>SWHMR audit.</p>
<p>Perineal massage should not be performed by healthcare professionals in the second stage of labour.</p>	<p>Perineal massage or 'ironing out' of the perineum by a healthcare professional during the second stage does not reduce perineal trauma.^{7,2}</p>	<p>Inclusion of evidence based information in local perineal trauma and repair training.</p>	<p>Record of contents of local perineal trauma and repair training.</p>
<p>Either the 'hands on' (guarding the perineum and flexing the baby's head) or the 'hands poised' technique can be used to facilitate spontaneous birth.</p>	<p>The rates of perineal trauma are similar between the 'hands on' and 'hands poised' groups in research.⁷</p>	<p>Inclusion of evidence based information in local perineal trauma and repair training.</p>	<p>Record of contents of local perineal trauma and repair training.</p>

Statement	Rationale	Local demonstration	Local monitoring
There is restricted use of episiotomy Episiotomy should only be performed where there is a clinical need such as instrumental birth or suspected fetal compromise	There is no evidence of any benefit to routinely undertaking episiotomy. Routine use of episiotomy increases the perineal trauma rate. ^{2,19,20}	Reason for episiotomy contained within delivery record	Audit of SWHMR (computer/written record)
When episiotomy is undertaken a medio-lateral incision is made	Medio-lateral episiotomy reduces the risk of third and fourth degree tears compared to mid-line episiotomy. ²¹	Documentation in maternity record	SWHMR audit
There is clear documentation of the classification of perineal trauma	To facilitate decision making in relation to whether repair is necessary. Classification will also assist in determining who is the best person to repair the trauma.	Classification of degree of perineal trauma within delivery record	SWHMR audit
Second degree tears require the insertion of sutures	The current weight of evidence would indicate that second degree tears should be sutured, however it is recognised that some studies have brought this into question and this should be part of the woman's informed choice. ^{11,12,22}	Documentation of severity of trauma in SWHMR. Documentation of discussion with woman and woman's informed decision not to be sutured.	SWHMR audit.
Women who decline suturing of second degree perineal tears are offered extended postnatal visiting	To ensure wound assessment occurs regularly and early referral if problems arise	Documentation in maternity record	Audit of postnatal visiting

Statement	Rationale	Local demonstration	Local monitoring
<p>All women receive appropriately planned and implemented postnatal care of the perineum</p> <ul style="list-style-type: none"> • Adequate pain relief • Education on hygiene and care of perineum • Physiotherapy input • Appropriate referral if problems occur eg continence nurse/ physiotherapist or obstetrician. 	<p>To ensure the woman's health and wellbeing and ability to care for baby.</p>	<p>Ongoing education and support of all midwives caring for women in the immediate and long-term postnatal period.</p>	<p>Audit of records including pain score</p>

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Perineal trauma and repair literature search

Resource	Retrieved
Guidelines	
NICE http://www.nice.org.uk/	Intrapartum care: care of healthy women and their babies during childbirth http://www.nice.org.uk/nicemedia/pdf/IntrapartumCareSeptember2007mainguideline.pdf – mentions perineal tearing/trauma throughout, but see sections 8.5 and 10.4 in particular.
NHS Scotland Bodies	
NHS QIS http://www.nhshealthquality.org/	Sharing good practice in Scotland's maternity services: Forth valley http://www.nhshealthquality.org/nhsqis/files/Maternity_initiatives.pdf (page 7)
Others	
WHO http://www.who.int/en/	Episiotomy for vaginal birth http://www.rhlibrary.com/Commentaries/htm/Jlcom.htm – full text not available online Repair of vaginal and perineal tears http://www.who.int/reproductive-health/impac/Procedures/Repair_vaginal_P83_P90.html – procedure Episiotomy http://www.who.int/reproductive-health/impac/Procedures/Episiotomy_P71_P75.html - procedure
Royal College of Midwives http://www.rcm.org.uk/index.php	PEARLS: Perineal Assessment and Repair Longitudinal Study http://www.rcm.org.uk/professional/pages/research.php?id=2 Evidence-based guidelines for midwifery-led care in labour see page 71, care of the perineum practice points see page 81, suturing the perineum

Resource	Retrieved
RCOG http://www.rcog.org.uk	Postpartum problems (module 12) http://www.rcog.org.uk/resources/public/pdf/module12_pp.pdf The management of third- and fourth-degree perineal tears – March 2007 http://www.rcog.org.uk/resources/public/pdf/green_top29_management_third.pdf Methods and materials used in perineal repair – 2004 http://www.rcog.org.uk/resources/Public/pdf/perineal_repair.pdf
National Collaborating Centre for Primary Care	Postnatal care: routine postnatal care of women and their babies - 2006 http://www.nice.org.uk/nicemedia/pdf/CG037fullguideline.pdf
Monash University	The use of birth stools during second stage labour and the risk of perineal trauma http://www.mihsr.monash.org/cce/res/pdf/c/655.pdf
American College of Obstetricians and Gynaecologists	Episiotomy (Guideline) http://www.guideline.gov/summary/summary.aspx?view_id=1&doc_id=10926
Childbirth Connection (American)	Chapter 36: Repair of perineal trauma \\nhsqisgfp01\data\Knowledge Services\Literature searching\AdHocRequests\Perineal trauma\Repair of perineal trauma.pdf
AHRQ	The use of episiotomy in obstetrical care: a systemic review http://www.ahrq.gov/clinic/tp/epistp.htm
Others	Performing and repairing an episiotomy – South African maternal care manual http://www.gfmer.ch/PEP/pdf-MCM-2006/MCM_SW-9-2006.pdf

Resource	Retrieved
Joanna Briggs Institute	<p>Perineal Care</p> <p>\\nhsqisgfp01\data\Knowledge Services\Literature searching\AdHocRequests\Perineal trauma\JBI perineal care.htm</p> <p>Anaesthetics for perineal pain</p> <p>\\nhsqisgfp01\data\Knowledge Services\Literature searching\AdHocRequests\Perineal trauma\JBI anaesthetics.htm</p> <p>Therapeutic ultrasound for perineal pain</p> <p>\\nhsqisgfp01\data\Knowledge Services\Literature searching\AdHocRequests\Perineal trauma\JBI ultrasound.htm</p> <p>Perineal shaving</p> <p>\\nhsqisgfp01\data\Knowledge Services\Literature searching\AdHocRequests\Perineal trauma\JBI perineal shaving.htm</p>
Intute	<p>PERL Project (Promoting Effective Recovery from Labor) – American</p> <p>http://www.umich.edu/~umperl/index.htm</p>

Resource	Retrieved
Systematic Reviews	
Cochrane Library (Systematic Reviews)	<p>Antenatal perineal massage for reducing perineal trauma – 2006 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD005123/pdf_fs.html</p> <p>Episiotomy for vaginal birth - 1999 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000081/pdf_fs.html</p> <p>Continuous versus interrupted sutures for repair of episiotomy or second degree tears – 2007 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000947/pdf_fs.html</p> <p>Therapeutic ultrasound for postpartum perineal pain and dyspareunia - 1998 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000495/pdf_fs.html</p> <p>Routine perineal shaving on admission in labour - 2000 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD001236/pdf_fs.html</p> <p>Antibiotic prophylaxis for fourth-degree perineal tear during vaginal birth - 2005 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD005125/pdf_fs.html</p> <p>Topically applied anaesthetics for treating perineal pain after childbirth - 2005 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD004223/pdf_fs.html</p> <p>Rectal analgesia for pain from perineal trauma following childbirth - 2003 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD003931/pdf_fs.html</p> <p>Local cooling for relieving pain from perineal trauma sustained during childbirth - 2007 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD006304/pdf_fs.html</p> <p>Absorbable synthetic versus catgut suture material for perineal repair - 1999 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000006/pdf_fs.html</p>

Resource	Retrieved
Cochrane Library (Systematic Reviews)	<p>Position in the second stage of labour for women without epidural anaesthesia - 2004 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD002006/pdf_fs.html</p> <p>Soft versus rigid vacuum extractor cups for assisted vaginal delivery – 2000 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000446/pdf_fs.html</p> <p>Methods of repair for obstetric anal sphincter injury - 2006 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD002866/pdf_fs.html</p> <p>Enemas during labour - 2007 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000330/pdf_fs.html</p> <p>Surgery for complete rectal prolapse in adults - 1999 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD001758/pdf_fs.html</p> <p>Continuity of caregivers for care during pregnancy and childbirth - 2000 http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000062/pdf_fs.html</p>
DARE (Database of Abstracts of Reviews of Effects)	<p>Preventing perineal trauma during childbirth: a systematic review (Structured abstract) http://www.mrw.interscience.wiley.com/cochrane/cldare/articles/DARE-20000534/frame.html</p> <p>The use of episiotomy in obstetrical care: a systematic review (Structured abstract) http://www.mrw.interscience.wiley.com/cochrane/cldare/articles/DARE-20058408/frame.html</p>

Terms:

Perineal trauma/tear/repair

Episiotomy

Intrapartum/postpartum care

Resource	Retrieved
HTA (Health Technology Assessment) database	Calendula for perineal healing following childbirth (Structured abstract) http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-20030616/frame.html Episiotomy with vaginal birth (Brief record) - English abstract only http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-20061440/frame.html Lavender oil for perineal healing following childbirth (Structured abstract) http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-20030617/frame.html The use of birth stools during second stage labour and the risk of perineal trauma (Structured abstract) http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-20030693/frame.html
Clinical Summaries	
BMJ Clinical Evidence http://clinicalevidence.bmj.com/ceweb/index.jsp	Perineal care – (requires an Athens login). http://clinicalevidence.bmj.com/ceweb/conditions/pac/1401/1401.jsp
TRIP http://www.tripdatabase.com	Antenatal perineal massage for reducing perineal trauma – Birmingham Women's Hospital http://www.bwhct.nhs.uk/c195_webcat_perineal_massage.htm
Statistics	
ISD http://www.isdscotland.org/isd/CCC_FirstPage.jsp	Mode of delivery statistics http://www.isdscotland.org/isd/information-and-statistics.jsp?pContentID=1612&p_applic=CCC&p_service=Content.show&
Primary Literature	
Central Trial Register	MIDIRS searched instead of CENTRAL
OVID database	MIDIRS searched instead of Medline

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