Table of Contents

Key recommendations.........................................................................................................3
1. Purpose and scope .......................................................................................................... 4
2. Background and introduction.......................................................................................... 4
3. Methodology................................................................................................................... 5
4. Clinical guidelines.......................................................................................................... 5
4.1. Identification of obstetric anal sphincter injuries....................................................... 5
4.2. Technique of repair....................................................................................................... 6
4.3. Choice of suture material ............................................................................................ 6
4.4. Surgical competence, location of repair and analgesia.............................................. 7
4.5. Post-operative management......................................................................................... 7
4.6. Long-term follow-up and future deliveries ................................................................. 8
5. References ..................................................................................................................... 10
6. Implementation strategy ................................................................................................. 12
7. Key performance indicators........................................................................................... 12
8. Qualifying statement....................................................................................................... 12
Appendices.......................................................................................................................... 13
Appendix 1.......................................................................................................................... 13
Appendix 2.......................................................................................................................... 15
Appendix 3.......................................................................................................................... 18
Key Recommendations

1. All women with perineal trauma after childbirth should have an assessment of anal sphincter integrity following vaginal delivery by visual observation and digital vaginal and rectal palpation.

2. The role of endoanal ultrasound immediately in the postpartum period is limited due to patient acceptability and poor image quality due to oedema, and should not be used on a routine basis.

3. Anal sphincter tears following vaginal delivery are managed by primary anal sphincter repair.

4. The presence of a defect in the internal sphincter should be carefully sought out in all cases of Obstetric Anal Sphincter Injury (OASI).

5. A damaged internal anal sphincter should be repaired separately with a fine suture size such as 2-0 vicryl.

6. It is not adequate to perform such repairs under local anaesthetic alone. Women who have had a previous third degree tear and have persistent symptoms of faecal incontinence or significantly abnormal ultrasound or manometry results are best delivered by prelabour caesarean section, as are those who have undergone previous incontinence surgery.

7. Laxative use in the immediate post-partum period leads to a significantly earlier and less painful first bowel motion following a third or fourth degree perineal tear and earlier discharge for the patient.

8. It is prudent to prescribe both aerobic and anaerobic antibiotic cover following primary repair.

9. All women should be reviewed by a physiotherapist prior to discharge and should be offered physiotherapy and pelvic floor exercises for 6-12 weeks after obstetric anal sphincter injury and repair. Some women may require physiotherapy for a longer period of time. The specialist physiotherapist may be best placed to consider when physiotherapy should be discontinued.

10. Patient information leaflets should be readily available in maternity units, written in a reader-friendly manner, with clear diagrams if necessary.
1. Purpose and scope

The aim is to provide evidence-based guidance information for medical, midwifery staff and other members of the multi-disciplinary team on the diagnosis, management and treatment of obstetric anal sphincter injuries (OASIS). These guidelines are intended for healthcare professionals, particularly those in training, who are working in HSE-funded obstetric services. They are designed to guide clinical judgement but not replace it. In individual cases a healthcare professional may, after careful consideration, decide not to follow a guideline if it is deemed to be in the best interests of the woman and her baby.

2. Background and Introduction

The perineum extends from the pubic arch to the coccyx and is divided into the anterior urogenital triangle and the posterior anal triangle. Anterior perineal trauma is defined as injury to the labia, anterior vagina, urethra and clitoris. Posterior perineal trauma is defined as any injury to the posterior vaginal wall, perineal muscles or anal sphincter and may include disruption of the anal epithelium. Obstetric anal sphincter injury may occur spontaneously or by the extension of an episiotomy into the sphincter mechanism.

It is estimated that over 85% of women who have a vaginal delivery will sustain some degree of perineal trauma and of these 60-70% will require suturing (Sleep et al, 1984; McCandlish et al 1998). The Royal College of Obstetricians and Gynaecologists (RCOG) has issued guidelines regarding the classification of spontaneous tears, which allows differentiation to be made between injuries to the external anal sphincter (EAS), internal sphincter (IAS) and anal epithelium (Table 1) (RCOG, 2004). The incidence of clinical third and fourth degree perineal tears varies widely; it is reported at between 0.5%-3% in Europe (Sultan et al, 1993) and between 6% and 9% in the US (Handa et al, 2001). Large prospective studies have shown, however, that up to 25% of primiparous women experience altered faecal incontinence postnatally and up to one-third have evidence of some anal sphincter trauma after first vaginal delivery (Donnelly et al, 1998). In the majority, both these symptoms and injuries are relatively minor and transient but persistent incontinence to flatus or urgency of defaecation are emotionally and socially debilitating and may delay return to work after delivery.

Table 1: Definition of spontaneous tears Classification of obstetric anal sphincter tears (RCOG 2007)/ICS

<table>
<thead>
<tr>
<th>Injury:</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Degree</td>
<td>Injury confined to perineal skin only</td>
</tr>
<tr>
<td>Second Degree</td>
<td>Injury to perineum involving perineal muscles but not the anal sphincter</td>
</tr>
<tr>
<td>Third Degree</td>
<td>Injury to the perineum involving the anal sphincter complex (external and internal)</td>
</tr>
</tbody>
</table>
3. Methodology

Medline, EMBASE and Cochrane Database of Systematic Reviews were searched using terms relating to obstetric anal sphincter injury, third/fourth degree perineal tears, pregnancy and interventions. Searches were limited to humans and restricted to the titles of English language articles published between June 2001 and December 2011. Relevant meta-analyses, systematic reviews, intervention and observational studies were reviewed.

The principal guideline developers were Professor Colm O’Herlihy, UCD Professor of Obstetrics and Gynaecology and Dr Myra Fitzpatrick at the National Maternity Hospital. The guideline was peer-reviewed by: Dr Suzanne O’Sullivan (Cork), Dr Valerie Donnelly (Mount Carmel), Dr Maeve Eogan (Rotunda), Dr Emma Kilgarriff (GP), Ms Marguerite Hogan, Senior Physiotherapist (Mullingar), Ms Margaret Mason, Physiotherapy Manager (Coombe),

Abbreviations

OASI Obstetric Anal Sphincter Injury
EAS External Anal Sphincter
IAS Internal Anal Sphincter

4. Clinical Guidelines

4.1. Identification of obstetric anal sphincter injuries

All women should have an assessment of anal sphincter integrity following vaginal delivery. This should be assessed by both vaginal and rectal examination under good light to ascertain the degree of sphincter disruption. Visual inspection combined with palpation by performing a pill-rolling motion between the index finger in the rectum and the thumb over the anal sphincter will aid detection. A strong association has been shown between anal incontinence and occult anal sphincter injury diagnosed by ultrasound. While true occult tears do occur, many are likely to represent ‘overt’ anal sphincter injuries that have either been wrongly classified as a second-degree tear or missed. Increased vigilance particularly in women with second degree tears will help to minimise this occurrence (Andrews et al, 2006). The role of endoanal ultrasound immediately in the postpartum period is limited due to patient acceptability and poor image quality due to oedema and should not be used on a routine basis.
4.2. Technique of Repair

Anal sphincter tears following vaginal delivery are managed by primary anal sphincter repair although secondary procedures are described (Sorenson et al, 1993). The principal controversy regarding primary anal sphincter repair pertains to technique. Two methods are commonly employed. The first is an end-to-end approximation of the torn anal sphincter ends, a method traditionally performed by obstetricians. Overlapping of the torn external sphincter ends is a technique favoured by colorectal surgeons at secondary repair procedures (Figure 1). A study in 2006 reported the latter method to be superior in outcome at one year (Fernando et al, 2006) although a number of other studies have failed to show any advantage of one method over the other (Fitzpatrick et al, 2000; Garcia et al, 2005; Barisic et al, 2005). Recent work has also highlighted the importance of adequate identification and repair of tears to the internal anal sphincter, in order to reduce subsequent faecal incontinence symptoms (Mahoney et al, 2007).

The presence of a defect in the internal sphincter should be carefully sought out in all cases of OASIS.

Figure 1

![2 methods of anal sphincter repair](image)

Two commonly used methods of external anal sphincter repair are end-to-end approximate of the cut ends (top), and overlapping the cut ends and suturing through the overlapped portions (bottom).

4.3. Choice of Suture Material

There are no systematic reviews to assess the best suture material for repair of the sphincter mechanism. Monofilament suture materials such as Polydioxanone (PDS®) or Polyglyconate (Maxon®) are commonly used for repair of the external sphincter muscle because of their longer half-life, increased strength retention and decreased tissue reactivity. There also appears to be a decreased risk of infection, when compared with braided polyglactin (vicryl). However, these long acting materials may cause discomfort when the ends of the suture impinge on the perineal skin (suture migration). Use of a fine suture size such as 3-0 PDS may cause less irritation and discomfort and when repairs are being performed, burying
of the surgical knots beneath the superficial muscles is recommended to prevent knot migration to the skin.

The only randomised trial controlled trial comparing Vicryl and PDS showed no significant difference in morbidity from anal continence, perineal pain or suture migration within 12 months of follow-up (Williams et al, 2006). **A damaged internal anal sphincter should be repaired separately with a fine suture size such as 2-0 vicryl.** The remainder of the perineum may be sutured as routine.

### 4.4. Surgical competence, location of repair and analgesia

The sequelae associated with third and fourth degree perineal tears are of sufficient significance that it is now accepted that only trained personnel should undertake anal sphincter repair under optimum conditions. A recent audit showed that only 13% of obstetric trainees were satisfied with their level of experience prior to performing their first unsupervised repair (Andrews et al, 2009). Structured training may be effective in changing clinical practice and should be an adjunct to surgical training. The implementation of surgical skills workshops with the use of models and audiovisual material will further improve surgical outcomes.

Repair in an operating theatre will allow the repair to be performed under aseptic conditions with appropriate instruments, adequate light and an assistant. If it is felt that these conditions are obtainable within the labour ward setting, it is reasonable to conduct the repair in-situ. Access to regional or general analgesia ensures that the woman is pain-free and the sphincter is relaxed, allowing identification of the torn muscle margins and their approximation or overlap. **It is not adequate to perform such repairs under local anaesthetic alone.** [Particular care should be taken to avoid swabs being retained following perineal repair]

### 4.5. Post-operative management

Rectal diclofenac is an effective method of analgesia which significantly reduces pain on sitting, walking and defaecation within the first 48 hrs after delivery. Although there is little sustained effect after 48 hrs, the relief provided, particularly on defaecation, makes rectal diclofenac a primary choice of pain relief for obstetric anal sphincter and other perineal injuries (Dodd et al, 2004).

Delayed and painful defaecation can lead to considerable discomfort and stress for the patient. **Laxative use in the immediate post-partum period leads to a significantly earlier and less painful first bowel motion and reduces incidence of post-operative wound dehiscence following a third or fourth degree perineal tear repair and earlier discharge for the woman** (Mahony et al, 2007, RCOG, 2007).

There is no randomised controlled evidence examining the issue of peri- and post-operative antibiotic use in the management of obstetric anal sphincter injury. A Cochrane review found insufficient data to support a policy of routine prophylactic antibiotics in fourth degree tears, although they suggest that a randomised controlled trial is needed (Buppasiri et al, 2005). Third and particularly fourth degree perineal tears can become contaminated with bacteria from the rectum, significantly increasing the chance of perineal wound infection, which in turn leads
to a higher risk of wound breakdown, fistula formation and anal incontinence. Given the severity of these potential sequelae, **it is prudent to prescribe both aerobic and anaerobic antibiotic cover following primary repair.** All women should be reviewed by a physiotherapist prior to discharge and should be offered physiotherapy and pelvic floor exercises for 6-12 weeks after obstetric anal sphincter injury and repair. Some women may require physiotherapy for a longer period of time. The specialist physiotherapist may be well placed to decide when physiotherapy should be discontinued.

4.6. **Long-term follow up and future deliveries**

Women should be advised that the prognosis following external anal sphincter repair is good, with 60-80% asymptomatic at 12 months (RCOG 2007). It is helpful to review women in the postnatal period to discuss injury sustained during childbirth, assess for symptoms and offer advice on symptom management and future deliveries. Although the majority of women return to normality with minimum treatment, a proportion require intensive investigation, support and therapy to regain an acceptable quality of life (Fitzpatrick et al 2002). Appropriate Specialist Physiotherapy referral should be considered even if the woman is mildly symptomatic. Follow-up should ideally be in a dedicated Perineal Clinic with access to endoanal ultrasound, anal manometry and EMG studies of the anal sphincter complex and there should be close links between the specialist Physiotherapist and the Clinic. There are currently three specialised Perineal Clinics within the HSE-funded maternity hospitals, the Rotunda, National Maternity Hospital, Holles St. and Cork University Maternity Hospital.

A detailed bowel function questionnaire is invaluable in this respect as it provides a structured history and scoring framework so that a continence score can be allotted, permitting a more uniform objective assessment. Most of the current scoring systems are based on the presence of faecal urgency, flatal incontinence, faecal incontinence and the impact on daily life (Table 2) (Jorge and Wexner, 1993). The Modified Faecal Incontinence Quality of life Score is also a useful outcome measure (Appendix 3).

Few recent studies have examined obstetric outcome in pregnancies following previous third degree perineal tears and results are conflicting. One study found that although anal sphincter injury was increased five-fold at next delivery compared with all multiaparae, 95% of women delivering vaginally after a previous third degree tear did not sustain further overt sphincter damage. It also concluded that recurrence was not predictable using pre-delivery anal physiology testing (Harkin et al, 2003). Another study concluded that prior anal sphincter laceration does not appear to be a significant risk factor for recurrence of laceration.

Operative vaginal delivery, particularly with episiotomy, increases the risk of recurrent tear as it does for primary injury (Dandolu et al, 2005). In contrast, two further studies concluded that prior anal sphincter laceration is associated with increased risk of laceration in second delivery, particularly in women who deliver infants of high birthweight (Elfaghi et al, 2004; Siyoslaug et al, 2005). Such conflicting results help to explain the paucity of guidelines available for obstetric management following previous third or fourth degree perineal tear.

In general **women who have had a previous third degree perineal tear and have persistent symptoms of faecal incontinence or significantly abnormal**
endoanal ultrasound or manometry results are best delivered by pre-labour caesarean section, as are those who have undergone previous incontinence surgery. Women should also be counselled about the risks of developing anal incontinence or worsening of symptoms with subsequent vaginal delivery (RCOG 2007). These indications would not be expected to add significantly to the overall caesarean section incidence. Further study is needed before comprehensive and reliable recommendations can be made concerning the subsequent mode of delivery following rupture of the anal sphincter at a previous birth and ideally this should be assessed in the context of a randomised controlled trial.

Table 2:
Faecal Continence Scoring System (modified from Jorge and Wexner, 1993)

<table>
<thead>
<tr>
<th>Type of incontinence</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flatus</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Liquid</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Solid</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Wears pad</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Faecal urgency</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Minimum score=0, complete continence
5. References


Jorge JMN, Wexner SD. Etiology and management of fecal incontinence.


6. Implementation Strategy

- Distribution of guideline to all members of the Institute of Obstetricians and Gynaecologists and to all HSE-funded Maternity Hospitals/Units.
- Implementation through HSE Obstetrics and Gynaecology programme local implementation boards.
- Distribution to other interested parties and professional bodies.

7. Key Performance Indicators

- Number of third and fourth degree perineal tears annually per vaginal delivery.
- Number of women referred postnatally for secondary perineal repair per annum.
- Women followed up with continuing pelvic floor dysfunction one year post-natally (with symptom questionnaire).

8. Qualifying Statement

These guidelines have been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. Clinical material offered in this guideline does not replace or remove clinical judgement or the professional care and duty necessary for each pregnant woman. Clinical care carried out in accordance with this guideline should be provided within the context of locally available resources and expertise.

This Guideline does not address all elements of standard practice and assumes that individual clinicians are responsible for:
- Discussing care with women in an environment that is appropriate and which enables respectful confidential discussion.
- Advising women of their choices and ensuring informed consent is obtained.
- Meeting all legislative requirements and maintaining standards of professional conduct.
- Applying standard precautions and additional precautions, as necessary, when delivering care.
- Documenting all care in accordance with local and mandatory requirements.
Appendices

Appendix 1

Recommended Care Pathway for Management of Obstetric anal sphincter injury

POST OASI REPAIR - MANAGEMENT PRIOR TO DISCHARGE FROM HOSPITAL

- Post-natal care, hygiene advice and perineal care from Midwife
- Laxative prescription and broad spectrum antibiotic cover
- Arrange post-natal follow up by PHN

ON WARD
- Physiotherapist educates on pelvic floor anatomy, may do visual inspection of perineum with consent, to ascertain PF/anal sphincter activity
- Encourages good bowel and bladder habits
- Teaches manual support of perineum with defaecation and ↑ IAP (intra abdominal pressure)
- Teaches correct pelvic floor and anal sphincter exercises
- Gives Patient Information Leaflet and arranges out-patient follow up appt. with local Women’s Health Physiotherapist

Recommended Care Pathway for Management of Obstetric anal sphincter injury
MANAGEMENT OF OASI FOLLOWING DISCHARGE FROM HOSPITAL

PHYSIOTHERAPY 2-3 WEEKS
- Visual examination of perineum - checking for healing, refer back to Consultant if any sign of infection/inflammation
- Check for correct pelvic floor and anal sphincter activity, progress individualised pelvic floor exercise when appropriate
- Advice given if any bowel or bladder issues, advice given on dietary bulking agents or stool softeners, refer to GP if prescription required
- Emotional support, may need referral for counselling

PHN follows woman in community setting for wound care and routine post-partum care

6-12 WEEKS - Review by Consultant Obstetrician/Team

3-4 MONTHS ONWARDS
If asymptomatic and no perineal morbidity, woman can be discharged to care of her GP

If woman is showing improvement continue with physiotherapy treatment as long as is necessary. If symptoms continue, further referral for specialised assessment should be made to a specialised Perineal Clinic or Obstetrician where anal physiology testing/EMG studies can be performed and onward referral to a colorectal surgeon or specialist gynaecologist can be made if and when appropriate

Encourage referral to Physiotherapy during future pregnancies to maximise pelvic floor and anal sphincter muscle function

8 WEEKS ONWARDS
If there are symptoms of faecal or flatal incontinence further specialist Physiotherapy treatment may be considered based on digital rectal assessment findings such as: anal electrical stimulation/augmented biofeedback/rectal balloon biofeedback/manual therapy/ scar tissue mobilisation

GP POST-NATAL CHECK
Appendix 2

PATIENT INFORMATION LEAFLET

A Third or Fourth Degree Perineal Tear during Childbirth

What types of tears may occur during childbirth?

Most women, up to 90%, tear to some extent during childbirth. Most tears occur in the perineum, the area between the vaginal opening and anus (back passage)

• First degree tears - small skin-deep tears which usually heal naturally
• Second degree tears - deeper tears affecting the muscles of the perineum as well as the skin. These usually require stitches.
• Third degree tears - extend downwards from the vagina and perineum to the anal sphincter, the muscle that controls the anus.
• Fourth degree tears - extend to the anal canal as well as the rectum (further into the anus).

What is the difference between an episiotomy and a tear?

An episiotomy is a cut made by the doctor or midwife through the vaginal wall and perineum to make more space to deliver the baby. A tear happens as the baby stretches the vagina during birth. A tear may occur with an episiotomy.

Can a third or fourth degree tear be predicted?

It is not possible to predict or prevent these types of tears. Research has shown that, although an episiotomy makes more space for the baby to be born, it does not prevent a third or fourth degree tear from occurring. There are some factors that can increase the risk of a tear:

• One of your baby’s shoulders becomes stuck behind the pubic bone
• The second stage of labour is longer than expected
• Your first vaginal birth
• You have a large baby (over 8 pounds 13 ounces or 4kg)
• Labour needs to be induced (started)
• You have an assisted birth (forceps or vacuum delivery)

What happens after the birth if a tear occurs?

If your obstetrician or midwife suspects a third or fourth degree perineal tear, you will have a detailed examination of your perineum and anus. The doctor will explain how the tear will be repaired. This is usually performed under epidural or spinal anaesthesia but occasionally a general anaesthetic may be used. The obstetrician will then stitch the tear including the damaged anal sphincter in an operating theatre.
**What treatment will I be offered after repair of the tear?**

- Antibiotics will help decrease the risk of infection because the stitches are very close to the anus.
- You will be offered pain-relieving drugs such as paracetamol, ibuprofen or diclofenac to relieve any pain.
- You will be prescribed laxatives to make it easier and more comfortable to open your bowels.
- You may have a catheter in your bladder to collect urine until you feel able to walk to the toilet.
- You will need to strengthen the muscles of the perineum/pelvic floor to prevent possible problems with bowel control. The Physiotherapist will advise you on how to do pelvic floor muscle exercises correctly.

*None of the treatments offered will prevent you from breastfeeding.*

**What can I do to speed up healing of the tear?**

- Keep the area clean. Have a bath or shower at least once a day and change your maternity pads regularly. Regular hand-washing before, as well as after using the toilet will reduce the risk of infection.
- Drink 2-3 litres of water every day and eat a healthy, balanced high-fibre diet. This will ensure that your bowels open regularly and prevent constipation.
- Avoid heavy lifting, pushing or pulling while allowing the perineum to heal. Manually support your perineum during activities that increase the pressure in your abdomen and on your pelvic floor such as sneezing, coughing or vomiting. Support the perineum with a pad or a wad of toilet paper while emptying your bowels, and avoid straining.
- An ice pack may be helpful if your perineum is bruised and/or swollen. Wrap a small ice pack in a damp cloth and apply for ten minutes every few hours. Do not apply ice directly to the skin or leave on too long as this may cause an ice burn.
- You can take the pressure off the perineum by sitting on two rolled up towels placed parallel to each other under your sit bones to take pressure off the perineum. Lying with a wedge pillow under the low back can also help to raise the perineum and assist in decreasing the swelling.
- Pelvic floor exercises can be started as soon as your catheter has been removed. These exercises help increase the circulation of blood to the area and aid the healing process. The pelvic floor and anal sphincter muscles help support the pelvic organs and help control the bladder, vagina and anus.

- After childbirth and injury to the perineum, these muscles are not as effective. It is normal for the perineum to feel numb and sore initially but following the Physiotherapist’s advice you should be able to feel a gentle pelvic floor contraction within the first few days. The stitches usually dissolve within a couple of weeks and full healing can take up to 6-8 weeks.
How to do your pelvic floor exercises?

Lie on your back comfortably with your knees bent up. Tighten your back passage as if holding in wind and tighten the front passage as if you were trying to stop the flow of urine. You should feel a squeeze and a lift; hold for a few seconds and repeat a few times. If the front is sore, leave it for a few days and just work the back passage. After a day or two, try to squeeze up the back and the front. It is important to breathe normally and not to tighten your buttocks. Once you have mastered this exercise you can do it in any position, lying, sitting or standing. It is important to tighten your pelvic floor muscles before you do anything that puts them under pressure such as coughing or sneezing. Remember to ‘squeeze when you sneeze’. You need to do these exercises a few times daily over the next 3-4 months to strengthen the pelvic floor and anal sphincter muscles.

What are the long-term effects of a third or fourth degree tear?

Most women make a good recovery, particularly if the tear is recognised and repaired at the time. During recovery, some women may have

- Pain or soreness in the perineum
- Fears and apprehension about having sex
- A feeling that they have to rush to the toilet to open their bowels urgently or poor control of wind from the back passage

Follow-up Appointments

Your Public Health Nurse will visit you at home for your routine post-natal care. You may be offered an appointment with a specialist Physiotherapist for 2-3 weeks after the birth and again at 6-8 weeks. If you do not have a Physiotherapy appointment contact the Physiotherapy Department or ask your Midwife, Public Health Nurse or Doctor to refer you. It is important to make sure that your pelvic floor muscles are working correctly in order to prevent bladder and/or bowel problems.

You may be offered a follow-up appointment with a doctor at the hospital 6-12 weeks after you have given birth to check that the stitches have healed properly. You will be asked questions about your urine and bowel functions.

Can I have a vaginal birth in the future?

This depends on a number of factors. Your obstetrician will discuss these with you at your follow-up appointment or early in your next pregnancy. If you continue to experience symptoms from the third- or fourth-degree tear, you may want to consider a caesarean delivery. If your tear has healed completely and you do not have any symptoms, then you should be able to have a vaginal birth.

This information is based on the Royal College of Obstetricians and Gynaecologists (RCOG) Patient Information Leaflet and Guideline on ‘Management of Third and Fourth Degree Perineal Tears’ (2007), the ACPWH ‘Pelvic Floor Muscle Exercises’ Patient Information Leaflet (2009) and the CPWHC ‘Physiotherapy and the Pelvic Floor Muscles’ Patient Information Leaflet (2010)

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Appendix 3

Faecal Incontinence Quality of Life Scale (Rockwood et al, 2000)

**QUESTIONNAIRE**

**Q1:** In general, would you say your health is:

1  ◆ Excellent
2  ◆ Very Good
3  ◆ Good
4  ◆ Fair
5  ◆ Poor

**Q2:** For each of the items, please indicate how much of the time the issue is a concern for you due to accidental bowel leakage. (If it is a concern for you for reasons other than accidental bowel leakage then check the box under Not Apply)

<table>
<thead>
<tr>
<th>Q2.Due to accidental bowel leakage:</th>
<th>Most of the Time</th>
<th>Some of the Time</th>
<th>A Little of the Time</th>
<th>None of the Time</th>
<th>Not Apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I am afraid to go out</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>b. I avoid visiting friends</td>
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<td></td>
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<tr>
<td>c. I avoid staying overnight away</td>
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<td>from home</td>
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<tr>
<td>d. It is difficult for me to get</td>
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<tr>
<td>out and do things like going to a</td>
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<tr>
<td>movie or to church</td>
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<tr>
<td>e. I cut down on how much I eat</td>
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<tr>
<td>before I go out</td>
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<tr>
<td>Whenever I am away from home, I</td>
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<tr>
<td>try to stay near a restroom as</td>
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<tr>
<td>much as possible</td>
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<tr>
<td>f. It is important to plan my</td>
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<tr>
<td>schedule (daily activities)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>around my bowel pattern</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>g. I avoid travelling</td>
<td></td>
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<tr>
<td>h. I worry about not being able to</td>
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<tr>
<td>get to the toilet in time</td>
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<tr>
<td>i. I feel I have no control over</td>
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<tr>
<td>my bowels</td>
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<tr>
<td>j. I can't hold my bowel movement</td>
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<tr>
<td>long enough to get to the</td>
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<tr>
<td>bathroom</td>
<td></td>
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<tr>
<td>k. I leak stool without even</td>
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<tr>
<td>knowing it</td>
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<tr>
<td>l. I try to prevent bowel accidents</td>
<td></td>
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<tr>
<td>by staying very near a bathroom</td>
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</tr>
</tbody>
</table>
Q3: Due to accidental bowel leakage, indicate the extent to which you AGREE or DISAGREE with each of the following items. (If it is a concern for you for reasons other than accidental bowel leakage then check the box under Not Apply).

<table>
<thead>
<tr>
<th>Q3. Due to accidental bowel leakage:</th>
<th>Strongly Agree</th>
<th>Somewhat Agree</th>
<th>Somewhat Disagree</th>
<th>Strongly Disagree</th>
<th>Not Apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I feel ashamed</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b. I cannot do many of things I want to do</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c. I worry about bowel accidents</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d. I feel depressed</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>e. I worry about others smelling stool on me</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>f. I feel like I am not a healthy person</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>g. I enjoy life less</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>h. I have sex less often than I would like to</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>i. I feel different from other people</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The possibility of bowel accidents is always on my mind</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>j. I am afraid to have sex</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>k. I avoid travelling by plane or train</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>l. Whenever I go someplace new, I specifically locate where the bathrooms are</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Q4: During the past month, have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile?

1. Extremely So – To the point that I have just about given up
2. Very Much So
3. Quite a Bit
4. Some – Enough to bother me
5. A Little Bit
6. Not At All

Scale Scoring
Scales range from 1 to 5, with a 1 indicating a lower functional status of quality of life. Scales scores are the average (mean) response to all items in the scale (e.g., add the responses to all questions in a scale together and then divide by the number of items in the scale. Not Apply is coded as a missing value in the analysis for all questions.)
**Scale 1:** Lifestyle, ten items: Q2a Q2b Q2c Q2d Q2e Q2g Q2h Q3b Q3l Q3m

**Scale 2:** Coping/Behaviour, nine items: Q2f Q2i Q2j Q2k Q2m Q3c Q3h Q3j Q3n

**Scale 3:** Depression/Self perception, seven items: Q1 Q3d Q3f Q3g Q3i Q3k Q4 Q1 is reverse coded.

**Scale 4:** Embarrassment, three items: Q2l Q3a Q3e.