Professor Michael Permezel
President

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists
ABN 34 100 268 969

Excellence in Women's Health

College House
254 - 260 Albert Street
East Melbourne Vic 3002
Australia
telephone: +61 3 9417 1699
facsimile: +61 3 9419 0672
e-mail: ranzcog@ranzcog.edu.au

6 June 2014

Lachlan Broadribb
Coroners Registrar
Coroners Court of Victoria
Lever 11, 222 Exhibition Street
MELBOURNE VIC 3000

Dear Mr Broadribb

Re: Investigation into the Death of Linda E Parker

(Court Ref: COR 2010 002497)

Thank you for your letter and the opportunity to respond to recommendations from the Coroner made in response to the tragic death of Ms Linda Parker. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) is committed to ensuring that pregnancy and birth are as safe as possible for all women, and we welcome the opportunity to contribute.

Having reviewed the Finding into death without Inquest, it appears that the Coroner is referring to older RANZCOG guidelines, and I advise that both of the guidelines referred to have been revised and updated in the recent past as part of our regular cycle of review of College statements. As such, the College considers that the current statements appropriately address these very important points.

Recommendation 1A

> *Develop a clinical guideline that defines a clear pathway for clinical practice when placenta accreta is discovered prior to, or at delivery. The clinical guideline will determine the situation when placenta accreta is suspected or known; birth should occur in a place with the necessary medical facilities and expertise.*

A copy of the updated current guideline (*Placenta Accreta* C-Obs 20) is attached and the College considers that it covers the points recommended by the Coroner and provides a clear pathway for clinical practice as recommended. Because haemorrhage is such a critical issue, further and separate guidance is also provided in our statement C-Obs 43 *Management of Postpartum Haemorrhage* (attached).

Recommendation 1B

> *Amend the Caesarean Delivery on Maternal Request statement to include evidence of the potential risks associated with recurrent caesarean sections.*

I advise that College Statement C-Obs 39 (*Caesarean Delivery on Maternal Request* - CDMR) (attached) contains the following section:

> *4.1.4 What effect does CDMR have in subsequent pregnancies?*
>
> Pivotal in the decision-analysis for many women should be the intended future family size. With rising caesarean section rates, placenta accreta becomes increasingly common. Silver *et al.* (2006) found that placenta accreta was present in 0.24%, 0.31%, 0.57%, 2.1%, 2.3% and 6.7% of women undergoing their first, second, third, fourth, fifth, and sixth or more caesarean deliveries, respectively. This was a consequence of both an increasing incidence of placenta praevia with repeated caesarean sections and an increased likelihood of placenta accreta where the placenta was located over the uterine scar. Placenta accreta and percreta may be associated with significant maternal mortality and morbidity including massive haemorrhage requiring emergency hysterectomy.

.../ 2

Caesarean delivery may be associated in subsequent pregnancies with delayed conception, increased risk of ectopic pregnancy, possibly intrauterine growth restriction (IUGR), preterm birth, unexplained stillbirth after 34 weeks and uterine scar dehiscence or rupture.

I trust that the above is of assistance. Given that the College is of the opinion that both recommendations are adequately addressed in the current version of the relevant College statement, no further action is intended to be taken. If, however, the College can provide further assistance, please do not hesitate to contact me.

Yours sincerely

Michael Permezel

President

The Royal Australian
and New Zealand
College of
Obstetricians and
Gynaecologists

Placenta Accreta

This statement has been developed and reviewed by the Women's Health Committee and approved by the RANZCOG Board and Council.

A list of Women's Health Committee Members can be found in Appendix B.

Disclosure statements have been received from all members of this committee.

Disclaimer This information is intended to provide general advice to practitioners. This information should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient. This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The document has been prepared having regard to general circumstances.

First endorsed by RANZCOG: November 2003
Current: March 2014
Review due: March 2017

Objectives: To provide advice on the management of placenta accrete.

Outcomes: To reduce morbidity and mortality in women diagnosed with placenta accrete.

Target audience: All health practitioners providing maternity care and patients.

Evidence: Medline was searched for studies relating to management of placenta accreta.

Values: The evidence was reviewed by the Women's Health Committee (RANZCOG), and applied to local factors relating to Australia and New Zealand.

Background: This statement was first developed by Women's Health Committee in November 2003 and reviewed in March 2013.

Funding: The development and review of this statement was funded by RANZCOG.

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1. Introduction

Morbid adherence of the placenta to the uterine wall is a potentially life threatening obstetric complication that frequently requires interventions such as caesarean hysterectomy and high volume blood transfusion. With the rising caesarean delivery rate and increasing maternal age, the incidence of placenta accreta has significantly increased.[1]

2. Discussion and recommendations

Morbidly adherent placentation may be suspected when there is a placenta praevia in a woman with a history of caesarean section or other uterine surgery.[1,2] Diagnosis can be difficult[3], though accurate diagnosis antenatally allows for appropriate planning of delivery to minimise morbidity.[4] A number of studies have identified the efficacy of transvaginal ultrasound in the diagnosis of placenta accreta.[3,4,5] The ultrasound features of this condition have been described by Comstock.[3] Recent studies looking at the use of MRI have not demonstrated superiority of this modality over transvaginal ultrasound.3,5

2.1 What are the management considerations where there is suspected or known placenta accreta?

Where there is a suspected or known placenta accreta delivery should occur in a place with the necessary medical facilities and expertise to manage these high risk cases. Attention to optimisation of maternal haemoglobin and iron stores. It is important to be cognisant of the risk of placental growth to the serosa of the uterus, and into adjacent organs such as the bladder in extreme circumstances.

2.2 What protocol should be in place for facilities caring for women with placenta accreta?

It is critical that facilities providing obstetric care have, and adhere to, a massive transfusion protocol with which all staff are familiar. Many larger hospitals will already have such a protocol in place, but a template can be found in Appendix A. Such facilities would include: access to "cellsaver", an ability to cope with high volume blood transfusion, availability of other blood products (e.g. platelets, clotting factors) and appropriate specialised expertise (e.g. neonatal, senior obstetric and anaesthetic, haematological and intensive care). A multidisciplinary approach is required, including possible prior consultation with other medical specialists such as, urologists, gynaecological oncologists, vascular surgeon, intensivists, and interventional radiologists.

As with all women at risk of major obstetric haemorrhage, those with suspected placenta accreta should be encouraged to remain close to the planned hospital of confinement for the duration of the third trimester of pregnancy. An emergency contingency plan is strongly recommended.

The timing of the caesarean section should consider the desirability of performing it as an elective rather than an emergency procedure. The caesarean section should therefore usually be undertaken at an earlier gestation than that for uncomplicated elective caesarean births or uncomplicated placenta praevia.

2.3 What are the surgical management should be considered for management of placenta accrete?

Three surgical management choices may be considered according to available expertise, geographical and individual circumstances:

1. Delivery of the baby and attempted delivery of the placenta. This is associated with a high likelihood of hysterectomy but not invariably so. If this option is chosen, the surgeon must be prepared to proceed promptly to hysterectomy if needed and the anaesthetist prepared for massive transfusion as bleeding may be considerable whilst the hysterectomy is being undertaken.

2. Delivery of the baby via a uterine incision distant from the placenta, quick repair of the uterus and en bloc hysterectomy. OR

3. Delivery of the baby via a uterine incision distant from the placenta, trimming of the cord close to insertion site, full repair of the uterus and conservative management. About two thirds of women will avoid a hysterectomy, one third will still require a hysterectomy because of uncontrollable bleeding, which may be delayed up to several weeks, and this approach also has a significant risk of infectious morbidity. In addition, uncertainty as to the time of onset of secondary bleeding can tax available resources. This has serious implications if the patient is returning to a remote area with little facility to cope with sudden severe haemorrhage.[12]

2.4 What are the fertility rates and pregnancy outcomes following conservative management of placenta accreta?

Retrospective studies of pregnancy following conservative management of placenta accreta have reported reasonably good fertility rates and pregnancy outcomes but with an increased rate of recurrent placenta accreta (17-29%).[8,9]

2.5 Should ureteric stenting be undertaken for placenta accreta?

Consideration of ureteric stenting should be made particularly when there is a suspicion of placenta percreta.

2.6 What is the role of interventional radiology for the treatment of massive post-partum haemhorrage?

Interventional radiology can be lifesaving and uterine sparing for the treatment of massive post-partum haemorrhage. It can be useful in the management of haemorrhage from abnormal placentation after delivery.

2.7 What is the role of balloon catheters prior to delivery in placenta accreta?

The role of radiological placement of balloon catheters prior to delivery in placenta accreta requires further evaluation.[6]

3. References

1. Miller DA, Chollet JA, Goodwin TM. Clinical risk factors for placenta previa-placenta accreta. Am J Obstet Gynecol 1997 Jul; 177 (1): 210-4.

2. Armstrong CA, Harding S, Matthews T, Dickinson JE. Is placenta accreta catching up with us? ANZJOG 2004: 77 (3); 210-231.

3. Dwyer BK, Belogolovkin V, Tran L, Rao A, Carroll I, Barth R, Chitkara UJ. Prenatal Diagnosis of Placenta Accreta: Sonography or Magnetic Resonance Imaging. J Ultrasound Med 2008: 27 (9): 1275-1281.

4. Comstock CH. Antenatal diagnosis of placenta accreta: a review. Ultrasound Obstet Gynecol 2005; 26; 98-96.

5. McLean LA, Heilbrun ME, Eller AG, Kennedy AM, Woodward PJ. Assessing the role of Magnetic Resonance Imaging in the Management of Gravid Patients at Risk for Placenta Accreta. Acad Radiol 2011; 18: 1175-1180.

6. RCOG Green-top Guideline No.27 Jan 2011. Placenta praevia, placenta praevia accreta and vas praevia: diagnosis and management.

7. Jyoti R, Robertson M. Imaging placenta accreta. O&G Magazine. 2010 Winter Edition; v.12 n2.

8. Sentilhes L ,Kayem G, Ambroselli C et al. Fertility and pregnancy outcomes following conservative treatment for placenta accreta. Human Reproduction, Vol.25, No.11 pp.2803-2810, 2010.

9. Alanis M, Hurst BS, Marshburn PB et al. Conservative Management of placenta increta with selective arterialisation preserves future fertility and results in favourable outcome in subsequent pregnancies. Fertility and Sterility Vol.86, No.5, November 2006, 1514.e3-7.

10. National Blood Authority. Patient Blood Management Guidelines: Module 1 – Critical Bleeding /Massive Transfusion. 2011.

11. National Health and Medical Research Council. NHMRC additional levels of evidence and grades for recommendations for developers of guidelines. Canberra; 2009.

12. Pather S. *et al.*, Maternal outcome after conservative management of placenta percreta at caesarean section: A report of three cases and a review of the literature. ANZJOG 2014: 54, 84-87

4. Links to other College statements

(C-Gen 02) Guidelines for consent and the provision of information regarding proposed treatment
http://www.ranzcog.edu.au/component/docman/doc_download/899-c-gen-02-guidelines-for-consent-and-the-provision-of-information-regarding-proposed-treatment-.html

(C-Gen 15) Evidence-based Medicine, Obstetrics and Gynaecology
http://www.ranzcog.edu.au/component/docman/doc_download/894-c-gen-15-evidence-based-medicine-obstetrics-and-gynaecology.html?Itemid=341

5. Patient information

A range of RANZCOG Patient Information Pamphlets can be ordered via:

http://www.ranzcog.edu.au/publication/womens-health-publications/patient-information pamphlets.html

Appendices

Appendix A - Patient Blood Management Guidelines: Module 1, Massive transfusion protocol template

Massive transfusion protocol (MTP) template

The information below, developed by consensus, broadly covers areas that should be included in a local MTP. This template can be used to develop an MTP to meet the needs of the local institution's patient population and resources

Senior clinician determines that patient meets criteria for MTP activation

Baseline:
Full blood count, coagulation screen (PT, INR, APTT, fibrinogen), biochemistry, arterial blood gases

Notify transfusion laboratory (*insert contact no.*) to:
'Activate MTP'

Laboratory staff
- Notify haematologist/transfusion specialist
- Prepare and issue blood components as requested
- Anticipate repeat testing and blood component requirements
- Minimise test turnaround times
- Consider staff resources

Haematologist/transfusion specialist
- Liaise regularly with laboratory and clinical team
- Assist in interpretation of results, and advise on blood component support

Senior clinician
- **Request:**[a]
  - 4 units RBC
  - 2 units FFP
- **Consider:**[a]
  - 1 adult therapeutic dose platelets
  - tranexamic acid in trauma patients
- **Include:**[a]
  - cryoprecipitate if fibrinogen < 1 g/L

a Or locally agreed configuration

Bleeding controlled?

YES ▼ NO

Notify transfusion laboratory to:
'Cease MTP'

OPTIMISE:
- oxygenation
- cardiac output
- tissue perfusion
- metabolic state

MONITOR
(every 30–60 mins):
- full blood count
- coagulation screen
- ionised calcium
- arterial blood gases

AIM FOR:
- temperature > 35°C
- pH > 7.2
- base excess < –6
- lactate < 4 mmol/L
- Ca^{2+} > 1.1 mmol/L
- platelets > 50 × 10^9/L
- PT/APTT < 1.5 × normal
- INR ≤ 1.5
- fibrinogen > 1.0 g/L

Suggested criteria for activation of MTP

- Actual or anticipated 4 units RBC in < 4 hrs, + haemodynamically unstable, +/– anticipated ongoing bleeding
- Severe thoracic, abdominal, pelvic or multiple long bone trauma
- Major obstetric, gastrointestinal or surgical bleeding

Initial management of bleeding
- Identify cause
- Initial measures
  - compression
  - tourniquet
  - packing
- Surgical assessment
  - early surgery or angiography to stop bleeding

Specific surgical considerations
- If significant physiological derangement, consider damage control surgery or angiography

Cell salvage
- Consider use of cell salvage where appropriate

Resuscitation
- Avoid hypothermia, institute active warming
- Avoid excessive crystalloid
- Tolerate permissive hypotension (BP 80–100 mmHg systolic) until active bleeding controlled
- Do not use haemoglobin alone as a transfusion trigger

Special clinical situations
- Warfarin:
  - add vitamin K, prothrombinex/FFP
- Obstetric haemorrhage:
  - early DIC often present, consider cryoprecipitate
- Head injury:
  - aim for platelet count > 100 × 10^9/L
  - permissive hypotension contraindicated

Dosage

Platelet count < 50 x 10^9/L	1 adult therapeutic dose
INR > 1.5	FFP 15 mL/kg[a]
Fibrinogen < 1.0 g/L	cryoprecipitate 3–4 g[a]
Tranexamic acid	loading dose 1 g over 10 min, then infusion of 1 g over 8 hrs

a Local transfusion laboratory to advise on number of units needed to provide this dose

Considerations for use of rFVIIa[b]

The *routine* use of rFVIIa in trauma patients is not recommended due to its lack of effect on mortality (Grade B) and variable effect on morbidity (Grade C). Institutions may choose to develop a process for the use of rFVIIa where there is
- uncontrolled haemorrhage in salvageable patient, and
- failed surgical or radiological measures to control bleeding, and
- adequate blood component replacement, and
- pH > 7.2, temperature > 34°C

Discuss dose with haemataologist/transfusion specialist

b rFVIIa is not licensed for use in this situation, all use must be part of practice review

ABG	arterial blood gas	FFP	fresh frozen plasma	APTT	activated partial thromboplastin time
INR	international normalised ratio	BP	blood pressure	MTP	massive transfusion protocol
DIC	disseminated intravascular coagulation	PT	prothrombin time	FBC	full blood count
RBC	red blood cell	rFVIIa	activated recombinant factor VII		

Appendix B Women's Health Committee Membership

Name	Position on Committee
Associate Professor Stephen Robson	Chair
Professor Susan Walker	Deputy Chair - Obstetrics
Dr Gino Pecoraro	Deputy Chair - Gynaecology
Professor Yee Leung	Member
Associate Professor Anuschirawan Yazdani	Member
Dr Simon Craig	Member
Associate Professor Paul Duggan	Member
Dr Vijay Roach	Member
Dr Stephen Lyons	Member
Dr Ian Page	Member
Dr Donald Clark	Member
Dr Amber Moore	Member
Dr Martin Ritossa	Member
Dr Benjamin Bopp	Member
Dr James Harvey	Member
Dr John Tait	Member
Dr Anthony Frumar	Member
Associate Professor Kirsten Black	Member
Dr Jacqueline Boyle	Chair of IWHC
Dr Louise Sterling	GPOAC representative
Ms Catherine Whitby	Council Consumer representative
Ms Susan Hughes	Consumer representative
Ms Sherryn Elworthy	Midwifery representative
Dr Scott White	Trainee representative
Dr Agnes Wilson	RANZCOG Guideline developer

Appendix C Overview of the development and review process for this statement

i. Steps in developing and updating this statement

This statement was originally developed in November 2003 and was most recently reviewed in March 2014. The Women's Health Committee carried out the following steps in reviewing this statement:

- Declarations of interest were sought from all members prior to reviewing this statement.
- Structured clinical questions were developed and agreed upon.
- An updated literature search to answer the clinical questions was undertaken.
- At the March 2014 face-to-face committee meeting, the existing consensus-based recommendations were reviewed and updated (where appropriate) based on the available body of evidence and clinical expertise. Recommendations were graded as set out below in Appendix C part iii)

ii. Declaration of interest process and management

Declaring interests is essential in order to prevent any potential conflict between the private interests of members, and their duties as part of the Women's Health Committee.

A declaration of interest form specific to guidelines and statements was developed by RANZCOG and approved by the RANZCOG Board in September 2012. The Women's Health Committee members were required to declare their relevant interests in writing on this form prior to participating in the review of this statement.

Members were required to update their information as soon as they become aware of any changes to their interests and there was also a standing agenda item at each meeting where declarations of interest were called for and recorded as part of the meeting minutes.

There were no significant real or perceived conflicts of interest that required management during the process of updating this statement.

iii. Grading of recommendations

Each recommendation in this College statement is given an overall grade as per the table below, based on the National Health and Medical Research Council (NHMRC) Levels of Evidence and Grades of Recommendations for Developers of Guidelines (2009).[11] Where no robust evidence was available but there was sufficient consensus within the Women's Health Committee, consensus-based recommendations were developed or existing ones updated and are identifiable as such. Consensus-based recommendations were agreed to by the entire committee. Good Practice Notes are highlighted throughout and provide practical guidance to facilitate implementation. These were also developed through consensus of the entire committee.

Recommendation category		Description
Evidence-based	A	Body of evidence can be trusted to guide practice
	B	Body of evidence can be trusted to guide practice in most situations
	C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
	D	The body of evidence is weak and the recommendation must be applied with caution
Consensus-based		Recommendation based on clinical opinion and expertise as insufficient evidence available
Good Practice Note		Practical advice and information based on clinical opinion and expertise

Appendix D Full Disclaimer

This information is intended to provide general advice to practitioners, and should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient.

This information has been prepared having regard to general circumstances. It is the responsibility of each practitioner to have regard to the particular circumstances of each case. Clinical management should be responsive to the needs of the individual patient and the particular circumstances of each case.

This information has been prepared having regard to the information available at the time of its preparation, and each practitioner should have regard to relevant information, research or material which may have been published or become available subsequently.

Whilst the College endeavours to ensure that information is accurate and current at the time of preparation, it takes no responsibility for matters arising from changed circumstances or information or material that may have become subsequently available.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

Management of Postpartum Haemorrhage (PPH)

This statement has been developed and reviewed by the Women's Health Committee and approved by the RANZCOG Board and Council.

A list of Women's Health Committee Members can be found in Appendix B.

Disclosure statements have been received from all members of this committee.

Disclaimer This information is intended to provide general advice to practitioners. This information should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient. This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The document has been prepared having regard to general circumstances.

First endorsed by RANZCOG: March 2011
Current: March 2014
Review due: March 2017

Objectives: To provide advice on the management of postpartum haemorrhage.

Outcomes: Minimising risks for the patient associated with Postpartum Haemorrhage.

Target audience: All health practitioners providing maternity care and patients.

Values: The evidence was reviewed by the Women's Health Committee (RANZCOG), and applied to local factors relating to Australia and New Zealand.

Background: This statement was first developed by Women's Health Committee in March 2011 and reviewed in March 2014.

Funding: The development and review of this statement was funded by RANZCOG.

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1. Summary of recommendations

Recommendation 1	Grade and reference
Active management of the third stage of labour (use of prophylactic oxytocics, early cord clamping and controlled cord traction) should be recommended to all pregnant women as this reduces the risk of PPH and the need for blood transfusion.[1] Prophylactic oxytocics should be recommended for the management of the third stage of labour, whether following vaginal or caesarean birth, as they reduce the risk of PPH by at least 50%.[1]	Consensus-based recommendation

2. Introduction

Postpartum haemorrhage (PPH) remains a major cause of both maternal mortality and morbidity within Australia and New Zealand. PPH is common, with an incidence in Australia of between five and fifteen percent.[1] While the majority of these cases are minor, requiring little active management and causing minimal morbidity, it must be remembered that PPH remains a leading cause of maternal death both globally and in Australia and New Zealand. Traditionally PPH has been defined as a blood loss of 500ml or more during puerperium and severe PPH as a blood loss of 1000ml or more.[1,2] Further classification of PPH into primary (within 24 hours of delivery) and secondary (between 24 hours and six weeks postpartum) is also well established.

3. Discussion and recommendations

3.1 How can postpartum haemorrhage be prevented?

3.1.1 What are the risk factors?

A large number of risk factors for PPH have been identified but most cases of PPH have no identifiable risk factor.[1] For those women known to have risk factors for PPH appropriate management should be instigated in both the antenatal and intrapartum periods to mitigate this risk. Importantly, this should include discussion with the woman and her family about the most appropriate place for delivery. Women with significant risk factors for PPH should deliver in a unit with rapid access to blood and blood products and have antenatal correction of anaemia.

3.1.2 What are important considerations in the event of abnormal placentation?

All women must have placental location determined by antenatal ultrasound. Appropriate recognition, preparation and management of women with placenta praevia or suspected morbidly adherent placentation is crucial as these conditions are associated with increased risk of catastrophic haemorrhage and maternal mortality.

3.1.3 How should the third stage of labour be managed?

Active management of the third stage of labour (use of prophylactic oxytocics, early cord clamping and controlled cord traction) should be practised as this reduces the risk of PPH and the need for blood transfusion.[1] Prophylactic oxytocics should be used for the management of the third stage of labour, whether following vaginal or caesarean birth, as they reduce the risk of PPH by at least 50%.[1] While misoprostol has been used in routine management of the third stage of labour, quality trials in the hospital setting have reported that it is less effective than oxytocin and is associated with a greater incidence of side effects.[1] Oxytocin should remain the drug of choice for this indication and misoprostol can be an alternative when the use of oxytocin is not possible. Women may occasionally request physiological management of the third

stage without the use of an oxytocic. It is important that these women are adequately informed of the increased risks of bleeding associated with this practice.

Recommendation 1	Grade and reference
Active management of the third stage of labour (use of prophylactic oxytocics, early cord clamping and controlled cord traction) should be recommended to all pregnant women as this reduces the risk of PPH and the need for blood transfusion.[1] Prophylactic oxytocics should be recommended for the management of the third stage of labour, whether following vaginal or caesarean birth, as they reduce the risk of PPH by at least 50%.[1]	Consensus-based recommendation [1]

3.2 What are the management considerations for Postpartum Haemorrhage?

Effective team management of PPH involves recognition, communication, resuscitation, monitoring and investigation and directed treatment. Once a PPH has been recognised these components should be conducted simultaneously for optimal patient care.[1] Some guidelines invoke basic measures for estimated blood loss (EBL) of 500ml-1000ml with no clinical shock and a full protocol of measures for EBL greater than 1000ml and continuing bleeding, or where there is evidence of clinical shock. It is important to consider both the patient's prior haemoglobin and her total blood volume when assessing the severity of PPH. Total blood volume at term is approximately 100ml/kg (i.e. 7000ml for a 70 kg woman, but only 5000ml for a 50kg woman).

1. Recognition

Assessment of ongoing blood loss is an essential aspect of post-partum care. Visual estimation of blood loss is notoriously unreliable and often underestimates true blood loss. More accurate measures such as weighing drapes, pads and swabs can also be used. Clinical signs of shock or tachycardia should prompt a thorough assessment of the mother including an accurate appraisal of blood loss, both concealed and revealed.

2. Communication

The successful management of PPH requires a multidisciplinary team approach. The clinical team involved, their response to PPH, and ability to escalate this response in the face of severe haemorrhage will vary according to the setting and circumstance of delivery. All centres providing obstetric care should implement and regularly review a clear plan of communication, resuscitation and directed treatment to respond to PPH. Senior obstetric and midwifery staff will be needed in the first instance, but other clinicians (such as anaesthetists, haematologists or transfusion specialists, intensivists and sub-specialty surgeons) may be called upon in the setting of more serious haemorrhage. In all cases of PPH, a second clinician (usually the anaesthetist) is vital in ensuring adequate resuscitation, especially while the obstetrician is busy instituting operative management. Often haematologists are required to co-ordinate the transfusion of blood products. Communication with the patient and their support person is important as this can be a frightening event for all involved.

3. Resuscitation

The cornerstone of resuscitation is restoration of blood volume and oxygen-carrying capacity. A simple 'ABC' approach is often used initially but clinical judgement should be used to guide resuscitation in each situation.

- Immediately call for help
- Rapidly assess for danger to self and others
- Assessment of airway and breathing initially with administration of high flow oxygen is recommended.

- Wide-bore intravenous access should be established with blood sent for full blood count, coagulation profile and cross-match.
- Rapid infusion with fluids, ideally warmed, should be begun once intravenous access is achieved.
- The use of group specific or group O RhD-negative blood should be considered early to restore oxygen carrying capacity.
- It is critical that facilities providing obstetric care have, and adhere to, a massive transfusion protocol with which all staff are familiar. Many larger hospitals will already have such a protocol in place, but a template can be found in Appendix A.[1]
- Additional measures such as keeping the woman warm and positioned flat are also important.

4. Monitoring and investigation

Appropriate monitoring and investigation should be guided by clinical judgement, but in all cases of PPH, should, at a minimum, include the recording of observations at regular intervals, (not monitoring and already done by now) and repeating, as indicated, in an appropriate time frame the haematological investigations. Pulse rate, blood pressure, oxygen saturation and urinary output measurement should be instigated for any significant (>1000ml) or ongoing PPH, and invasive monitoring of arterial blood pressure or central venous pressure may be necessary depending upon the clinical situation. Consideration must be given to the most appropriate place of care in women with severe PPH; this may be a high dependency care or intensive care unit in some instances. Where patients need to be transferred to a more highly equipped facility for management of PPH, the need for transfer should be anticipated and initiated early. In the meantime, aggressive resuscitation should continue and regular communication with the receiving unit is essential.

Appropriate prophylaxis for venous thromboembolism should also be instituted once the acute situation has been controlled.

Management of PPH invariably involves addressing the causes of bleeding, commonly known as 'the four Ts'. A fifth 'T' has been added to emphasise the important role of theatre and surgery in managing all causes of PPH. There is little randomised control trial (RCT) evidence to guide the management of PPH. The only Cochrane review on primary PPH identified only three suitable trials; all concerned the use of misoprostol. There was inadequate evidence to comment on the utility of surgical, radiological, haemostatic or other pharmacological interventions.[1] Hence most interventions are guided by best practice rather than high quality evidence.

a. Tone - uterine atony is the most common cause of primary PPH but clinical assessment should be used to exclude other causes. The following interventions have all been used to stop the bleeding, generally in the stepwise progression as presented here.
    i. Mechanical:
        - Uterine massage or bimanual uterine compression.
        - Empty bladder.
    ii. Pharmacological:
        - Oxytocin (Syntocinon) by slow intravenous injection or infusion.
        - Ergometrine by slow intravenous injection, in the absence of contraindications.
        - Misoprostol (1000mcg) rectally. Whilst many studies have studied the use of misoprostol to manage the third stage of labour fewer have dealt with using misoprostol to treat PPH. In the hospital setting there is evidence to suggest that misoprostol is clinically equivalent to oxytocin in women who have already received prophylactic oxytocin when used for excessive post partum bleeding due to suspected uterine atony but insufficient evidence that the addition of misoprostol is superior to oxytocin and ergometrine alone.[1,2]

- Prostaglandin F2α (500mcg increments up to 3mg) administered intra-muscularly or intra-myometrially.

b. Trauma of the genital tract. Thorough assessment of the entire genital tract is essential. The perineum, vagina and cervix should all be visually inspected for bleeding sources. Pressure should be applied to bleeding areas and repair attempted, either in the labour ward or the operating theatre if required. If the patient is shocked and the amount of vaginal bleeding is normal, consider intra-abdominal sources such as ruptured uterus, broad ligament haematoma, subcapsular liver rupture, ruptured spleen, and ruptured aneurysm).

   Tissue (retained products of conception) - usually due to retained placenta, cotyledon or membranes. If the placenta has been delivered assess for obvious missing tissue. Examine the mother vaginally to assess the adherence of the placenta and if adherent repeat oxytocic dose, empty the bladder and transfer to theatre for manual removal of placenta.

c. Thrombin (abnormalities of coagulation) - rarely the primary cause of PPH and usually the consequence of massive haemorrhage and as such is addressed briefly above. Specific discussion is beyond the scope of this guideline.

d. Theatre - surgical interventions should be initiated sooner rather than later, especially hysterectomy in cases of uterine rupture, placenta accreta or uncontrolled massive haemorrhage.

e.
   i. Balloon tamponade. Several case series have been published reporting the results of using a Foley catheter, Bakri balloon, Rusch balloon or Sengstaken-Blackmore oesophageal catheter with good results where the uterus is empty and contracting.[1]
   ii. Haemostatic brace suturing (such as the B-Lynch suture).[1]
   iii. Bilateral ligation of uterine arteries.
   iv. Bilateral ligation of internal iliac arteries by an experienced operator.
   v. Selective arterial embolisation. This intervention can only be achieved in institutions with timely access to both radiological expertise and equipment. It is important to note that time delays in accessing embolisation can occur and should not preclude alternate surgical treatment.
   vi. Hysterectomy.

4.3 How should secondary PPH be managed?

Secondary PPH is usually associated with endometritis (with or without retained products of conception). Conventional treatment usually includes antibiotic therapy and, uterotonics in some cases. In situations of excessive or continued bleeding surgical intervention, particularly the evacuation of retained products, should be considered, irrespective of ultrasound findings.[1]

4. References

1. Henry A, Birch M R, Sullivan E A, Katz S, Wang YA. Primary PPH in an Australian tertiary hospital: a case-control study. Aust NZ J Obstet Gynaecol 2005; 45: 233-36.
2. NSW Department of Health - Primary Health and Community partnerships. Policy Directive. Postpartum Haemorrhage - Framework for prevention, early recognition & management. 2005.
3. National Blood Authority. Patient Blood Management Guidelines: Module 1 – Critical Bleeding /Massive Transfusion. 2011.
4. National Health and Medical Research Council. NHMRC additional levels of evidence and grades for recommendations for developers of guidelines. Canberra; 2009.

5. Other suggested reading

Mousa HA, Alfirevic Z. Treatment for primary postpartum haemorrhage. Cochrane Database Syst Rev 2007; (1): CD003249.

RCOG Green-top Guideline No. 52. Prevention and management of postpartum haemorrhage. 2009.

Begley CM, Gyte GML, Murphy DJ, Devane D, McDonald SJ, McGuire W. Active versus expected management in the third stage of labour. Cochrane Database Syst Rev 2010; (7): CD007412.

Cotter AM, Ness A, Tolosa JE. Prophylactic oxytocin for the third stage of labour. Cochrane Database Syst Rev 2001; (4): CD001808.

Gulmezoglu AM, Villar J, Ngoc NTN, Piaggio G, Carroli G, et al. WHO Multicentre randomised trial of misoprostol in the management of the third stage of labour. Lancet 2001; 358: 689-95.

RCOG Green-top Guideline No. 52. Prevention and management of postpartum haemorrhage. 2009.

Burtelow M, Riley E, Druzin M, Fontaine M, Viele M, Goodnough LT. How we treat: management of life threatening primary postpartum with a standardised massive transfusion protocol. Transfusion; 47: 1564-1572.

Mousa HA, Alfirevic Z. Treatment for primary postpartum haemorrhage. Cochrane Database Syst Rev 2007; (1): CD003249.

Mousa HA, Alfirevic Z. Treatment for primary postpartum haemorrhage. Cochrane Database Syst Rev 2007; (1): CD003249.

Blum J, Winikoff B, Raghaven S, Dabash R, Ramadan MC, Dilbaz B, Durocher J, Yalvac S, Diop A, Dzuba IG, Ngoc NTN. Treatment of postpartum haemorrhage with sublingual misoprostol versus oxytocin in women receiving prophylactic oxytocin: a double blind, randomised non-inferiority trial. Lancet 2010; 375: 217-23.

Georgiou C. Balloon tamponade in the management of postpartum haemorrhage: a review. BJOG 2009; 116: 748-757.

El-Hamamy E, B-Lynch C. A worldwide review of the uses of the uterine compression suture techniques as alternative to hysterectomy in the management of severe postpartum haemorrhage. J Obstet Gynaecol 2005; 25: 143-149.

Edwards A, Ellwood DA. Ultrasonographic evaluation of the postpartum uterus. Ultrasound Obstet Gynecol 2000; 16: 640-3.

New Zealand Ministry of Health National Consensus Guidelines on the Treatment of Postpartum Haemorrhage
http://www.health.govt.nz/system/files/documents/publications/national-consensus-guideline-for-treatment-of-postpartum-haemorrhage-nov13.pdf

6. Links to other College statements

(C-Gen 15) Evidence-based Medicine, Obstetrics and Gynaecology
http://www.ranzcog.edu.au/component/docman/doc_download/894-c-gen-15-evidence-based-medicine-obstetrics-and-gynaecology.html?Itemid=341

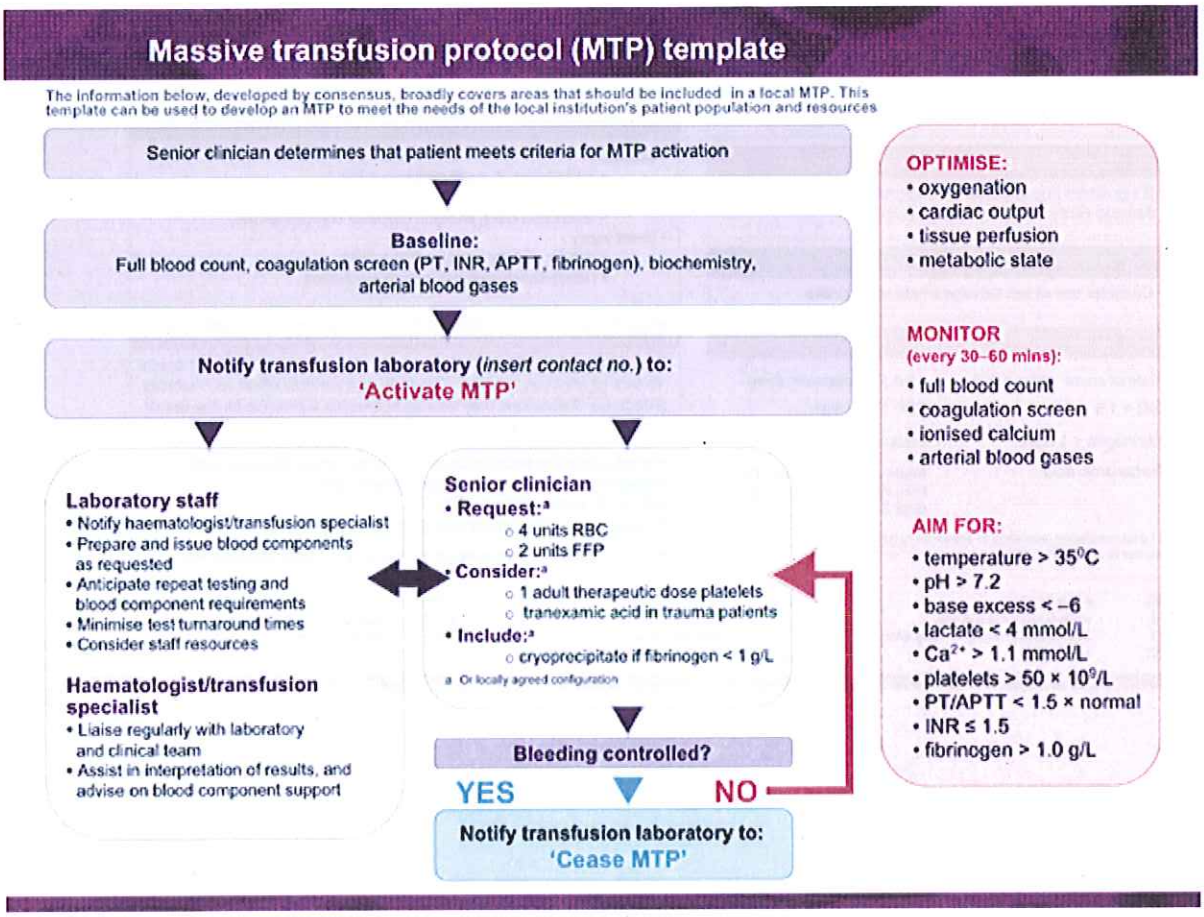
7. Patient information

A range of RANZCOG Patient Information Pamphlets can be ordered via:

http://www.ranzcog.edu.au/publication/womens-health-publications/patient-information pamphlets.html

Appendices

Appendix A – Patient Blood Management Guidelines: Module 1, Massive transfusion protocol template[3]



Suggested criteria for activation of MTP

- Actual or anticipated 4 units RBC in < 4 hrs, + haemodynamically unstable, +/– anticipated ongoing bleeding
- Severe thoracic, abdominal, pelvic or multiple long bone trauma
- Major obstetric, gastrointestinal or surgical bleeding

Initial management of bleeding

- Identify cause
- Inital measures:
  - compression
  - tourniquet
  - packing
- Surgical assessment
  - early surgery or angiography to stop bleeding

Specific surgical considerations

- If significant physiological derangement, consider damage control surgery or angiography

Cell salvage

- Consider use of cell salvage where appropriate

Dosage

Platelet count < 50 x 10^9/L	1 adult therapeutic dose
INR > 1.5	FFP 15 mL/kg[a]
Fibrinogen < 1.0 g/L	cryoprecipitate 3–4 g[a]
Tranexamic acid	loading dose 1 g over 10 min, then infusion of 1 g over 8 hrs

a Local transfusion laboratory to advise on number of units needed to provide this dose

Resuscitation

- Avoid hypothermia, institute active warming
- Avoid excessive crystalloid
- Tolerate permissive hypotension (BP 80–100 mmHg systolic) until active bleeding controlled
- Do not use haemoglobin alone as a transfusion trigger

Special clinical situations

- Warfarin:
  - add vitamin K, prothrombinex/FFP
- Obstetric haemorrhage:
  - early DIC often present, consider cryoprecipitate
- Head injury:
  - aim for platelet count > 100 × 10^9/L
  - permissive hypotension contraindicated

Considerations for use of rFVIIa[b]

The *routine* use of rFVIIa in trauma patients is not recommended due to its lack of effect on mortality (Grade B) and variable effect on morbidity (Grade C). Institutions may choose to develop a process for the use of rFVIIa where there is:

- uncontrolled haemorrhage in salvageable patient, and
- failed surgical or radiological measures to control bleeding, and
- adequate blood component replacement, and
- pH > 7.2, temperature > 34°C

Discuss dose with haematologist/transfusion specialist

[b] rFVIIa is not licensed for use in this situation; all use must be part of practice review

ABG	arterial blood gas	FFP	fresh frozen plasma	APTT	activated partial thromboplastin time
INR	international normalised ratio	BP	blood pressure	MTP	massive transfusion protocol
DIC	disseminated intravascular coagulation	PT	prothrombin time	FBC	full blood count
RBC	red blood cell	rFVIIa	activated recombinant factor VII		

Appendix B Women's Health Committee Membership

Name	Position on Committee
Associate Professor Stephen Robson	Chair
Professor Susan Walker	Deputy Chair - Obstetrics
Dr Gino Pecoraro	Deputy Chair - Gynaecology
Professor Yee Leung	Member
Associate Professor Anuschirawan Yazdani	Member
Dr Simon Craig	Member
Associate Professor Paul Duggan	Member
Dr Vijay Roach	Member
Dr Stephen Lyons	Member
Dr Ian Page	Member
Dr Donald Clark	Member
Dr Amber Moore	Member
Dr Martin Ritossa	Member
Dr Benjamin Bopp	Member
Dr James Harvey	Member
Dr John Tait	Member
Dr Anthony Frumar	Member
Associate Professor Kirsten Black	Member
Dr Jacqueline Boyle	Chair of IWHC
Dr Louise Sterling	GPOAC representative
Ms Catherine Whitby	Council Consumer representative
Ms Susan Hughes	Consumer representative
Ms Sherryn Elworthy	Midwifery representative
Dr Scott White	Trainee representative
Dr Agnes Wilson	RANZCOG Guideline developer

Appendix C Overview of the development and review process for this statement

i. Steps in developing and updating this statement

This statement was originally developed in March 2011 and was most recently reviewed in March 2014. The Women's Health Committee carried out the following steps in reviewing this statement:

- Declarations of interest were sought from all members prior to reviewing this statement.
- Structured clinical questions were developed and agreed upon.
- An updated literature search to answer the clinical questions was undertaken.
- At the March 2014 face-to-face committee meeting, the existing consensus-based recommendations were reviewed and updated (where appropriate) based on the available body of evidence and clinical expertise. Recommendations were graded as set out below in Appendix C part iii)

ii. Declaration of interest process and management

Declaring interests is essential in order to prevent any potential conflict between the private interests of members, and their duties as part of the Women's Health Committee.

A declaration of interest form specific to guidelines and statements was developed by RANZCOG and approved by the RANZCOG Board in September 2012. The Women's Health Committee members were required to declare their relevant interests in writing on this form prior to participating in the review of this statement.

Members were required to update their information as soon as they become aware of any changes to their interests and there was also a standing agenda item at each meeting where declarations of interest were called for and recorded as part of the meeting minutes.

There were no significant real or perceived conflicts of interest that required management during the process of updating this statement.

iii. Grading of recommendations

Each recommendation in this College statement is given an overall grade as per the table below, based on the National Health and Medical Research Council (NHMRC) Levels of Evidence and Grades of Recommendations for Developers of Guidelines.[4] Where no robust evidence was available but there was sufficient consensus within the Women's Health Committee, consensus-based recommendations were developed or existing ones updated and are identifiable as such. Consensus-based recommendations were agreed to by the entire committee. Good Practice Notes are highlighted throughout and provide practical guidance to facilitate implementation. These were also developed through consensus of the entire committee.

Recommendation category		Description
Evidence-based	A	Body of evidence can be trusted to guide practice
	B	Body of evidence can be trusted to guide practice in most situations
	C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
	D	The body of evidence is weak and the recommendation must be applied with caution
Consensus-based		Recommendation based on clinical opinion and expertise as insufficient evidence available
Good Practice Note		Practical advice and information based on clinical opinion and expertise

Appendix D Full Disclaimer

This information is intended to provide general advice to practitioners, and should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient.

This information has been prepared having regard to general circumstances. It is the responsibility of each practitioner to have regard to the particular circumstances of each case. Clinical management should be responsive to the needs of the individual patient and the particular circumstances of each case.

This information has been prepared having regard to the information available at the time of its preparation, and each practitioner should have regard to relevant information, research or material which may have been published or become available subsequently.

Whilst the College endeavours to ensure that information is accurate and current at the time of preparation, it takes no responsibility for matters arising from changed circumstances or information or material that may have become subsequently available.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

Caesarean Delivery on Maternal Request (CDMR)

This statement has been developed and reviewed by the Women's Health Committee and approved by the RANZCOG Board and Council.

A list of Women's Health Committee Members can be found in Appendix A.

Disclosure statements have been received from all members of this committee.

First endorsed by RANZCOG: July 2010
Current: November 2013
Review due: November 2016

Objectives: To provide advice on management where a woman requests elective delivery by caesarean section where there are no identifiable medical or obstetric contraindications to an attempt at vaginal delivery.

Definition: Caesarean delivery on maternal request (CDMR) is defined as elective caesarean delivery for singleton pregnancy on maternal request at term in the absence of any medical or obstetric indications.[1]

Options: Planned caesarean section versus an attempt at vaginal delivery.

Outcomes: Perinatal mortality, short-term neonatal morbidity, long-term infant morbidity, and short- and long-term maternal morbidity and mortality.

Target audience: All health practitioners providing maternity care, and patients.

Evidence: MEDLINE and CINAHL and the Cochrane Library were searched for randomised trials and cohort studies comparing caesarean section on maternal request versus an attempt at vaginal delivery (from July 2010 to 20 June 2013).

Values: The evidence was reviewed by the Women's Health Committee (RANZCOG), and applied to local factors relating to Australia and New Zealand.

Validation: This statement was compared with other advice on CDMR by AHRQ[2] NIH[1,3] ACOG[4] and NICE[5].

Background: This statement was first developed by Women's Health Committee in July 2010 to provide advice on management of maternal requests for caesarean delivery.

Funding: The development and review of this statement was funded by RANZCOG.

Table of Contents

1. Patient summary

A number of pregnant women may prefer caesarean to vaginal delivery for various non-medical reasons. There are some risks and benefits to this decision for both mother and baby. It is important to know that the risks may not be apparent until subsequent pregnancies. Women considering elective caesarean delivery where there is no medical reason should discuss this decision with their obstetrician.

2. Summary of recommendations

Recommendations	Grade and reference
If after full discussion the patient maintains a request for delivery by caesarean section, the obstetrician may: 1. Agree to perform the caesarean section, providing the patient is able to demonstrate an understanding the risks and benefits of the course of action she has chosen; OR 2. Decline to perform the caesarean section in circumstances where: • the obstetrician believes there are significant health concerns for mother or baby if this course of action is pursued; or • the patient appears to not have an understanding sufficient to enable informed consent to the procedure; OR 3. Advise the patient to seek the advice of another obstetrician for a second opinion.	Consensus-based recommendation

3. Introduction

The term Caesarean Delivery on Maternal Request (CDMR) refers to elective delivery by caesarean section at the request of a woman with no identifiable medical or obstetric indications to an attempt at vaginal delivery.[1]

The preference for CDMR varies widely and with many factors including geography, parity, previous birth experience and stage of reproductive life. Estimates of caesarean delivery on maternal request range from 4-18 percent but there is little confidence in the validity of these estimates as CDMR is not a well recognised clinical entity and there are currently no accurate means of reporting it.[1, 2, 6]

4. Evidence summary and basis for recommendations

No randomised trials on caesarean delivery for non-medical reasons have been performed.[7] Overall, there is a paucity of good quality evidence to differentiate the risks of elective CS compared to planned vaginal delivery as most studies of caesarean delivery include statistics from both emergency and elective caesarean sections.[1, 7] Most of the current available evidence is based on indirect analyses that compare elective cesarean deliveries without labour with a combination of vaginal deliveries and unplanned and emergency caesarean deliveries.[4, 8]

4.1 What effect does CDMR have on the incidence of short and long term maternal outcomes?

4.1.1 Does CDMR protect against pelvic floor damage?

Urinary incontinence is reduced if elective CS is performed before the onset of labour but this protective benefit is reduced with age and subsequent pregnancies regardless of mode of delivery.[9] Postpartum urinary incontinence may have a multifactorial origin.[10] Anal incontinence and sphincter defects are not noted after elective CS.[11, 12] CS may decrease the risk of pelvic organ prolapse but cannot be routinely advocated for the prevention of prolapse.[13]

4.1.2 Does CDMR reduce recovery time?

For most women the recovery after vaginal birth will be quicker than caesarean delivery, particularly with second and subsequent vaginal deliveries.

4.1.3 What effect does CDMR have on the Index Pregnancy?

CDMR removes the small potential or intrinsic risks associated with a vaginal delivery. However, these risks are then replaced with those imparted by a surgical delivery.

The maternal risks of the index pregnancy are related to the likelihood of successful vaginal birth. Epidemiological data is unable to distinguish a difference in maternal mortality.[1]

Emergency caesarean section can be more hazardous than the elective procedure and it may be safer for the mother in the index pregnancy to perform an elective procedure than to attempt vaginal birth where the likelihood of achieving vaginal birth is not high.[14]

It is impossible to predict which women will have a successful vaginal birth.

The risks of complication from elective CS (7%) is approximately half that of emergency CS in labour (16.3%) and instrumental vaginal deliveries (12.9%).[15]

There is a negative association between prelabor caesarean delivery and early breastfeeding. However, if breastfeeding is initiated, mode of delivery has no effect on the number of mothers still breastfeeding at 6 months.[16]

4.1.4 What effect does CDMR have in subsequent pregnancies?

Pivotal in the decision-analysis for many women should be the intended future family size. With rising caesarean section rates, placenta accreta becomes increasingly common. Silver *et al.* (2006)[17] found that placenta accreta was present in 0.24%, 0.31%, 0.57%, 2.1%, 2.3% and 6.7% of women undergoing their first, second, third, fourth, fifth, and sixth or more caesarean deliveries, respectively. This was a consequence of both an increasing incidence of placenta praevia with repeated caesarean sections and an increased likelihood of placenta accreta where the placenta was located over the uterine scar. Placenta accreta and percreta may be associated with significant maternal mortality and morbidity including massive haemorrhage requiring emergency hysterectomy.

Caesarean delivery may be associated in subsequent pregnancies with delayed conception, increased risk of ectopic pregnancy, possibly intrauterine growth restriction (IUGR), preterm birth, unexplained stillbirth after 34 weeks and uterine scar dehiscence or rupture.[8]

4.2 What effect does CDMR have on the incidence of short and long term neonatal outcomes?

4.2.1 Does CDMR reduce perinatal mortality?

Approximately 1.4 in 1000 can be expected to have an antenatal, intrapartum or neonatal death after 39 weeks gestation[18], increasing to 4.6/1000- at 41 weeks gestation.[19] This is an unacceptable risk for many women and health professionals.[20]

Perinatal mortality from elective CS has been quoted at 10 times lower than that from vaginal birth.[21]

4.2.2 Does CDMR reduce long-term neonatal morbidity?

Cerebral palsy can be expected to affect approximately 1 in 1000 term births. Of these, only 10% are felt to have an intrapartum origin[22] but a further unknown percentage are the consequence of 'late antenatal' events that might be prevented by elective caesarean section. However, the number of CDMR needed to prevent one case of cerebral palsy has been estimated at 5000.[23]

Erb's palsy and other birth injuries may occur after caesarean section but are unequivocally greater after vaginal birth. The rate of Erb's palsy is reported variously between 0.45 and 3 per thousand births. This is in the range that most women would seem to regard as important in deciding between caesarean section and vaginal birth.[20]

4.2.3 What effect does CDMR have on other neonatal outcomes?

There are no studies on caesarean delivery on maternal request of sufficient quality therefore studies on caesarean delivery without labour are often referred to for when predicting the effect of CDMR on neonatal outcomes.[4] Caesarean delivery without labor is associated with an increased risk of neonatal respiratory complications including transient tachypnea of the newborn.[24, 25]

5. Conclusions and Recommendations

When a women requests elective delivery by caesarean section in the absence of medical indication, the obstetrician should acknowledge the legitimacy of the request and explore the reasons underlying it. Accurate information may be sufficient to alleviate concerns and some issues, such as fear of pain and labour (tocophobia), may be satisfactorily addressed in other ways. The expected family size needs to be taken into account. Any decision making needs to take into account local jurisdictional factors.

Recommendation 1	Grade and reference
If after full discussion the patient maintains a request for delivery by caesarean section, the obstetrician may: 1. Agree to perform the caesarean section, providing the patient is able to demonstrate an understanding the risks and benefits of the course of action she has chosen; OR 2. Decline to perform the caesarean section in circumstances where: • the obstetrician believes there are significant health concerns for mother or baby if this course of action is pursued; or • the patient appears to not have an understanding sufficient to enable informed consent to the procedure; OR 3. Advise the patient to seek the advice of another obstetrician for a second opinion.	Consensus-based recommendation

6. References

1. National Institutes of Health. NIH State of the science Conference statement on Cesarean delivery on maternal request. Bethesda. 2006. p. 1-29.
2. Agency for Healthcare Research and Quality. Cesarean Delivery on Maternal Request. 2006.
3. National Institutes of Health. Vaginal Birth After Cesarean: New Insights. National Institutes of Health Consensus Development Conference Statement March 8–10, 2010.
4. ACOG Committee on Obstetric Practice. Cesarean Delivery on Maternal Request. April 2013.
5. National Institute of Health and Clinical Excellence. Caesarean Section CG132. November 2011.
6. Robson SJ, Tan WS, Adeyemi A, Dear KB. Estimating the rate of cesarean section by maternal request: anonymous survey of obstetricians in Australia. Birth. 2009;36(3):208-12.
7. Lavender T, Hofmeyr GJ, Neilson JP, Kingdon C, Gyte GM. Caesarean section for non-medical reasons at term. Cochrane Database Syst Rev. 2012;3:CD004660.
8. D'Souza R, Arulkumaran S. To 'C' or not to 'C'? Caesarean delivery upon maternal request: a review of facts, figures and guidelines. J Perinat Med. 2013;41(1):5-15.
9. Nygaard I. Urinary incontinence: is cesarean delivery protective? Semin Perinatol. 2006;30(5):267-71.
10. Brubaker L. Postpartum urinary incontinence. BMJ. 2002;324(7348):1227-8.
11. MacArthur C, Bick DE, Keighley MR. Faecal incontinence after childbirth. Br J Obstet Gynaecol. 1997;104(1):46-50.
12. Sultan AH, Kamm MA, Hudson CN, Thomas JM, Bartram CI. Anal-sphincter disruption during vaginal delivery. N Engl J Med. 1993;329(26):1905-11.
13. Nygaard I. Vaginal birth: a relic of the past in bulldogs and women? Obstet Gynecol. 2011;118(4):774-6.
14. Lilford RJ, van Coeverden de Groot HA, Moore PJ, Bingham P. The relative risks of caesarean section (intrapartum and elective) and vaginal delivery: a detailed analysis to exclude the effects of medical disorders and other acute pre-existing physiological disturbances. Br J Obstet Gynaecol. 1990;97(10):883-92.
15. Allen VM, O'Connell CM, Liston RM, Baskett TF. Maternal morbidity associated with cesarean delivery without labor compared with spontaneous onset of labor at term. Obstet Gynecol. 2003;102(3):477-82.
16. Prior E, Santhakumaran S, Gale C, Philipps LH, Modi N, Hyde MJ. Breastfeeding after cesarean delivery: a systematic review and meta-analysis of world literature. Am J Clin Nutr. 2012;95(5):1113-35.
17. Silver RM, Landon MB, Rouse DJ, Leveno KJ, Spong CY, Thom EA, *et al.* Maternal morbidity associated with multiple repeat cesarean deliveries. Obstet Gynecol. 2006;107(6):1226-32.
18. Vashevnik S, Walker S, Permezel M. Stillbirths and neonatal deaths in appropriate, small and large birthweight for gestational age fetuses. Aust N Z J Obstet Gynaecol. 2007;47(4):302-6.
19. Fretts RC, Elkin EB, Myers ER, Heffner LJ. Should older women have antepartum testing to prevent unexplained stillbirth? Obstet Gynecol. 2004;104(1):56-64.
20. Walker SP, McCarthy EA, Ugoni A, Lee A, Lim S, Permezel M. Cesarean delivery or vaginal birth: a survey of patient and clinician thresholds. Obstet Gynecol. 2007;109(1):67-72.
21. Smith GC, Pell JP, Cameron AD, Dobbie R. Risk of perinatal death associated with labor after previous cesarean delivery in uncomplicated term pregnancies. JAMA. 2002;287(20):2684-90.
22. Blair E, Stanley F. Aetiological pathways to spastic cerebral palsy. Paediatr Perinat Epidemiol. 1993;7(3):302-17.
23. Hankins GD, Clark SM, Munn MB. Cesarean section on request at 39 weeks: impact on shoulder dystocia, fetal trauma, neonatal encephalopathy, and intrauterine fetal demise. Semin Perinatol. 2006;30(5):276-87.

24. Morrison JJ, Rennie JM, Milton PJ. Neonatal respiratory morbidity and mode of delivery at term: influence of timing of elective caesarean section. Br J Obstet Gynaecol. 1995;102(2):101-6.
25. Zanardo V, Simbi AK, Franzoi M, Solda G, Salvadori A, Trevisanuto D. Neonatal respiratory morbidity risk and mode of delivery at term: influence of timing of elective caesarean delivery. Acta Paediatr. 2004;93(5):643-7.

7. Links to other College statements

(C-Obs 20) Placenta Accreta
http://www.ranzcog.edu.au/component/docman/doc_view/954-placenta-accreta-c-obs-20.html?Itemid=341

(C-Obs 31) Routine Intrapartum Care in the absence of pregnancy complications
http://www.ranzcog.edu.au/component/docman/doc_download/964-c-obs-31-routine-intrapartum-care-in-the-absence-of-pregnancy-complications-.html

(C-Obs 38) Planned Vaginal Birth after Caesarean Section (Trial of Labour)
http://www.ranzcog.edu.au/component/docman/doc_download/971-c-obs-38-planned-vaginal-birth-after-caesarean-section-trial-of-labour-.html

(C-Gen 02) Guidelines for consent and the provision of information regarding proposed treatment http://www.ranzcog.edu.au/component/docman/doc_download/899-c-gen-02-guidelines-for-consent-and-the-provision-of-information-regarding-proposed-treatment-.html

(C-Gen 15) Evidence-based Medicine, Obstetrics and Gynaecology
http://www.ranzcog.edu.au/component/docman/doc_download/894-c-gen-15-evidence-based-medicine-obstetrics-and-gynaecology.html?Itemid=341

Timing of Elective Caesarean Section (C-Obs 23)

Timing of Elective Caesarean Section at Term (C-Obs 23)

8. Patient information

A range of RANZCOG Patient Information Pamphlets can be ordered via:

http://www.ranzcog.edu.au/publication/womens-health-publications/patient-information pamphlets.html

Appendices

Appendix A Women's Health Committee Membership

Name	Position on Committee
Associate Professor Stephen Robson	Chair
Professor Susan Walker	Deputy Chair - Obstetrics
Dr Gino Pecoraro	Deputy Chair - Gynaecology
Professor Yee Leung	Member
Associate Professor Anuschirawan Yazdani	Member
Dr Simon Craig	Member
Associate Professor Paul Duggan	Member
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Dr Anthony Frumar	Member
Dr Kirsten Black	Member
Dr Jacqueline Boyle	Chair of IWHC
Dr Louise Sterling	GPOAC representative
Ms Catherine Whitby	Council Consumer representative
Ms Susan Hughes	Consumer representative
Ms Sherryn Elworthy	Midwifery representative
Dr Kathryn van Harselaar	Trainee representative
Dr Agnes Wilson	RANZCOG guideline developer

Appendix B Overview of the development and review process for this statement

i. Steps in developing and updating this statement

This statement was originally developed in July 2002 and was most recently reviewed in November 2013. The Women's Health Committee carried out the following steps in reviewing this statement:

- Declarations of interest were sought from all members prior to reviewing this statement.
- Structured clinical questions were developed and agreed upon.
- An updated literature search of MEDLINE and CINAHL and the Cochrane Library was carried out for randomised trials and cohort studies comparing caesarean section on maternal request versus an attempt at vaginal delivery (from July 2010 to 20 June 2013).
- At the July 2013 face-to-face committee meeting, the existing consensus-based recommendations were reviewed and updated (where appropriate) based on the available body of evidence and clinical expertise. Recommendations were graded as set out below in Appendix A part ii). An updated literature search to answer the clinical questions was undertaken where required.

ii. Declaration of interest process and management

Declaring interests is essential in order to prevent any potential conflict between the private interests of members, and their duties as part of the Women's Health Committee.

A declaration of interest form specific to guidelines and statements was developed by RANZCOG and approved by the RANZCOG Board in September 2012. The Women's Health Committee members were required to declare their relevant interests in writing on this form prior to participating in the review of this statement.

Members were required to update their information as soon as they become aware of any changes to their interests and there was also a standing agenda item at each meeting where declarations of interest were called for and recorded as part of the meeting minutes.

There were no significant real or perceived conflicts of interest that required management during the process of updating this statement.

iii. Grading of recommendations

Each recommendation in this College statement is given an overall grade as per the table below, based on the National Health and Medical Research Council (NHMRC) Levels of Evidence and Grades of Recommendations for Developers of Guidelines. Where no robust evidence was available but there was sufficient consensus within the Women's Health Committee, consensus-based recommendations were developed or existing ones updated and are identifiable as such. Consensus-based recommendations were agreed to by the entire committee. Good Practice Notes are highlighted throughout and provide practical guidance to facilitate implementation. These were also developed through consensus of the entire committee.

Recommendation category		Description
Evidence-based	A	Body of evidence can be trusted to guide practice
	B	Body of evidence can be trusted to guide practice in most situations
	C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
	D	The body of evidence is weak and the recommendation must be applied with caution
Consensus-based		Recommendation based on clinical opinion and expertise as insufficient evidence available
Good Practice Note		Practical advice and information based on clinical opinion and expertise

Appendix C Disclaimer

This information is intended to provide general advice to practitioners, and should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient.

This information has been prepared having regard to general circumstances. It is the responsibility of each practitioner to have regard to the particular circumstances of each case. Clinical management should be responsive to the needs of the individual patient and the particular circumstances of each case.

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