



## Timing of elective caesarean section at term

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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.

**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 2006**

**Current: March 2018**

**Review due: March 2021**

**Objective:** To provide advice on the timing of elective caesarean section at term.

**Target audience:** All health care professionals 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.

**Validation:** This statement was compared with ACOG and NICE guidance on this topic.

**Background:** This statement was first developed by Women's Health Committee in November 2006 and most recently reviewed in March 2018.

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

The timing of elective or pre-labour caesarean section at term should be decided with consideration given to both maternal and neonatal factors.

### Neonatal considerations

Caesarean birth, without prior labour, has been consistently demonstrated to be associated with an increased risk of neonatal respiratory morbidity in term infants, including transient tachypnoea of the newborn (TTN), surfactant deficiency and pulmonary hypertension.<sup>1</sup> When compared with either planned or achieved vaginal birth, elective caesarean birth is associated with a 2.1 to 6.8-fold increase in the risk of these respiratory morbidities in the near term neonate.<sup>2,3</sup> It is proposed that the increased incidence of respiratory distress following caesarean birth results from both surfactant deficiency (in the absence of the catecholamine surge accompanying labour), and from a failure to clear fetal lung fluid in labour.<sup>1,4</sup> The incidence of transfer to a Neonatal Intensive Care Unit (NICU) following planned term caesarean birth is twice that associated with planned vaginal birth.

Other more subtle disadvantages associated with birth earlier than 39 weeks have also been suggested.

In response to this, deferring elective delivery in uncomplicated singleton pregnancies until 39 weeks' gestation or later is recommended by many international obstetric bodies.<sup>5,6,10</sup> The rate of admission to NICU and the incidence of respiratory distress is inversely related to the gestation at delivery among infants born by elective caesarean birth at term.<sup>1,7,8</sup> These associations persist after adjustment for potential confounders, such as diabetes mellitus, pre-eclampsia and intra-uterine growth restriction.<sup>9</sup>

The Antenatal Steroids for Term Elective Caesarean Section (ASTECS) trial, found the incidence of respiratory distress following caesarean section >37 weeks was significantly reduced by the administration of betamethasone prior to delivery<sup>9</sup>), however administration of steroids in this setting has been subject to limited investigation, and may have adverse consequences.

### Maternal considerations

Against the neonatal benefits need to be weighed the (mostly maternal) risks of deferring delivery until 39 weeks or beyond. UK data<sup>10</sup> suggests that about 10% of women booked for caesarean section at 39 weeks will labour prior to the date of scheduled caesarean section. The implication is that there will be a proportion of women who will need to have an emergency caesarean section in place of a planned caesarean section. This has important resource implications and the increased maternal hazard associated with emergency, rather than elective, caesarean section needs to be weighed against the expected improved perinatal outcomes. In some circumstances (e.g. placental insufficiency, footling breech presentation) there will also be increased perinatal risk associated with the onset of labour or spontaneous rupture of the membranes prior to birth. Local factors, such as availability of emergency caesarean section services should be considered.

On balance, weighing up the risk of respiratory morbidity following elective caesarean section and the risk of labouring prior to caesarean section, it is recommended that elective caesarean section in women without additional risks should be carried out at approximately 39 weeks gestation. Where delivery by caesarean section (without prior labour) is planned significantly before 39 weeks gestation, consideration should be given to the administration of corticosteroids to reduce

respiratory morbidity in the newborn. In pregnancies where elective delivery is expected or possible it is important to establish a reliable expected due date in the first trimester.

Recommendation 1	Grade and references
It is recommended that elective caesarean section in women without additional risks should be carried out at approximately 39 weeks gestation.	Consensus Based Recommendation

### Preterm elective caesarean delivery

In the event of maternal disease (such as pre-eclampsia), obstetric complications (such as multiple pregnancies or placenta previa) or fetal complications (such as IUGR), earlier 'elective caesarean delivery' may be necessary after weighing up the relative hazards of premature delivery versus those associated with continuing the pregnancy.

Women should be informed of the risks surrounding elective delivery and the usual standards of documentation and consent should apply.

## References

1. Jain, L, Eaton DC. Physiology of fetal lung fluid clearance and the effect of labour. *Semin Perinatol* 2006; 30: 34-43.
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3. Kolas T, Saugstad OD, Daltveit AK, Nilsen ST, Oian P. Planned caesarean versus planned vaginal delivery at term: comparison of newborn infant outcomes. *Am J Obstet Gynecol* 2006; 195: 1538-43.
4. O’Brodivich H. Fluid clearance from the lungs of newborns, infants and children. *Paediatr Respir Rev* 2006; 7 (S1): S62-3.
5. ACOG educational bulletin. Assessment of fetal lung maturity. Number 230, 1996. Committee on Educational Bulletins of the American College of Obstetricians and Gynecologists. *Int J Gynaecol Obstet* 1997; 56: 191-8.
6. Yee W, Amin H, Wood S. Elective caesarean delivery, neonatal intensive care unit admission, and neonatal respiratory distress. *Am J Obstet Gynecol* 2008; 11: 823-8.
7. Gouyon JB, Ribakovskiy C, Ferdynus C, Quantin C, Sagot P, Gouyon B. Severe respiratory disorders in term neonates. *Paediatr Perinat Epidemiol* 2007; 22: 22-30.
8. Hansen AK, Wisborg K, Uldbjerg N, Henriksen TB. Risk of respiratory morbidity in term infants delivered by elective caesarean section: cohort study. *BMJ* 2008; 336: 85-7.
9. Stutchfield P, Whitaker R, Russell I. Antenatal betamethasone and incidence of neonatal respiratory distress after caesarean section: pragmatic randomized trial. *BMJ* 2005; 331: 662.
10. National Institute of Health and Clinical Excellence: Clinical Guideline Caesarean section 2011. Available at: [www.nice.org.uk/cg132](http://www.nice.org.uk/cg132)

## Patient information

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

<https://www.ranzcog.edu.au/Womens-Health/Patient-Information-Guides/Patient-Information-Pamphlets>

## Appendices

### Appendix A Women's Health Committee Membership

Name	Position on Committee
Professor Yee Leung	Chair
Dr Joseph Sgroi	Deputy Chair, Gynaecology
Associate Professor Lisa Hui	Member
Associate Professor Ian Pettigrew	EAC Representative
Dr Tal Jacobson	Member
Dr Ian Page	Member
Dr John Regan	Member
Dr Craig Skidmore	Member
Associate Professor Janet Vaughan	Member
Dr Bernadette White	Member
Dr Scott White	Member
Associate Professor Kirsten Black	Member
Dr Greg Fox	College Medical Officer
Dr Marilyn Clarke	Chair of the ATSI WHC
Dr Martin Byrne	GPOAC Representative
Ms Catherine Whitby	Community Representative
Ms Sherryn Elworthy	Midwifery Representative
Dr Amelia Ryan	Trainee Representative

### 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 November 2006 and was most recently reviewed in March 2018. 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 November 2018 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 B part iii). The statement was then forwarded to RANZCOG Board and Council for approval in July 2018.

#### *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.<sup>17</sup> 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 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.