



Warm water immersion during labour and birth

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: July 2008

Current: July 2017

Review due: July 2020

Objectives: To provide advice regarding the management of women who choose to labour/ birth immersed in water.

Options: Warm water immersion during labour; water birth; conventional labour and birth.

Target audience: All health professionals providing obstetric care and patients.

Background: This statement was first developed by Women's Health Committee in July 2008 and reviewed in July 2014.

Evidence: A literature search on the terms warm water immersion and water birth was undertaken.

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

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1. Patient Summary

Healthy women with uncomplicated pregnancies may find that having a warm bath in labour helps with relaxation and reduces their need for other sorts of pain relief. A warm bath increases relaxation and production of endorphins (the body's natural pain relief hormone). It reduces the pain of contractions and the pressure on your pelvis and muscles. Water immersion during labour leads to a reduction in the use of pharmacological pain relief and their associated side effects.¹ Birth in water carries a different set of risks to water immersion during labour.

2. Summary of recommendations

Recommendation 1	Grade
<p>Facilities that plan to offer immersion during labour and waterbirth need to establish rigorous protocols for candidate selection; infection control and occupational health and safety procedures; and exclusion criteria including recommending women leave the pool if urgent maternal or fetal compromise develops.</p> <p>Clinicians attending women who are labouring and birthing in water must have appropriate training and demonstrated competence in the management of women undergoing warm water immersion (WWI) and in the conduct of a waterbirth and be familiar with related clinical practice guidelines.</p>	Consensus-based recommendation
Recommendation 2	Grade
<p>Women should receive information about both labour and birth in water in the antenatal period. The proven benefits of warm water immersion in labour should be discussed at that time. This also allows adequate time to discuss the choice of waterbirth so that an informed decision can be made.</p>	Consensus-based recommendation
Recommendation 3	Grade
<p>Staff must be trained in, and have practised obstetric emergency drills in, the correct procedure to assist the woman to leave the water in an emergency situation and to manage the emergency appropriately.</p>	Consensus-based recommendation
Recommendation 4	Grade
<p>It is considered imperative that regular (at least annually) audit be conducted in units offering warm water immersion in labour and waterbirth. These audits should include collection of data relating to the various maternal outcomes such as use of alternative analgesia, length of labour and maternal intervention rates and neonatal outcomes such as unexpected nursery admission. These audits should be available for peer review setting, such as a perinatal morbidity and mortality meeting. Additionally evaluation should be conducted to ensure adherence to published guidelines on WWI and waterbirth.</p>	Consensus-based recommendation

3. Introduction

The use of water immersion as a therapeutic medium is not unusual and the use of warm water during labour is favoured by many women as a form of relaxation and pain relief. Practitioners' views on water immersion for labour and birth tend to be polarised. There is much less support in the medical community for waterbirth in comparison to water immersion in labour. Those in favour cite advantages to the mother during labour and birth, while those against raise issues of fetal safety. Although there are no adequately powered, randomised controlled trials to provide Level 1 evidence for waterbirths, from the research available it appears that water immersion during first stage labour and/or birth may offer some benefits to the woman. Whilst there is much potential for further research, the evidence to date has failed to reveal any major problems with either WWI or waterbirth in selected low risk women, particularly when clinicians are adequately educated and practice with care², clinical trials in this area have been generally underpowered.

In the absence of accurate data, the woman's wishes should be respected within the framework of safety and clinical guidelines. The maternity unit should be able to provide best practice physical structures and systems, staffed by appropriately trained personnel and with timely access to high level obstetric and neonatal facilities.

4. Discussion and recommendations

4.1 What is the current research in relation to warm water immersion?

A Cochrane review¹ provides the most recent international evidence on water immersion in labour and water birth. The results showed that:

Water immersion during the first stage of labour was associated with a significant reduction in the epidural/spinal/paracervical analgesia/anaesthesia rate amongst women allocated to water immersion compared to controls (478/1254 versus 529/1245; risk ratio (RR) 0.90; 95% confidence interval (CI) 0.82 to 0.99, six trials).

There was also a reduction in duration of the first stage of labour (mean difference -32.4 minutes; 95% CI -58.7 to -6.13).

Of the three trials that compared water immersion during the second stage with no immersion, one trial showed a significantly higher level of satisfaction with the birth experience (RR 0.24; 95% CI 0.07 to 0.80).¹

4.1.1 What is the current research in relation to waterbirth?

Concerns often raised regarding birth in water focus on fetal safety include respiratory difficulties and drowning. To date, there is no evidence of increased maternal, fetal or neonatal risk associated with water immersion, compared with labouring and giving birth on land. Current observational evidence suggests that where water births are conducted according to a protocol and women are selected appropriately, they can be achieved safely.²

Johnson's^{3,4} review of the newborn respiratory physiology outlines that there are several protective mechanisms that prevent the baby from inhaling or gasping during a birth in water. The diving reflex prevents a healthy baby born in water from drowning.¹

There have been two reports of neonatal death following waterbirth. These adverse outcomes are very rare, and causality cannot be inferred on the evidence to directly link the reported case studies of rare adverse outcomes with waterbirth.¹

In relation to waterbirth, the Cochrane review¹ results showed that:

There is a growing body of evidence that reports on the safety and efficacy of labour and birth in water.

There was no difference in assisted vaginal deliveries (RR 0.86; 95% CI 0.71 to 1.05, seven trials), caesarean sections (RR 1.21; 95% CI 0.87 to 1.68, eight trials), use of oxytocin infusion (RR 0.64; 95%CI 0.32 to 1.28, five trials), perineal trauma or maternal infection.

There were no differences for Apgar score less than seven at five minutes (RR 1.58; 95% CI 0.63 to 3.93, five trials), neonatal unit admissions (RR 1.06; 95% CI 0.71 to 1.57, three trials), or neonatal infection rates (RR 2.00; 95% CI 0.50 to 7.94, five trials).

Although there is no evidence of increased adverse outcomes to the fetus, neonate, or woman as a result of the women’s immersion in water during labour, the authors concluded that due to considerable heterogeneity within the studies, further research is required.¹

4.2 Facilities and clinicians offering WWI and waterbirth.

Recommendation 1	Grade
<p>Facilities that plan to offer immersion during labour and waterbirth need to establish rigorous protocols for candidate selection; infection control and occupational health and safety procedures; and exclusion criteria including recommending women leave the pool if urgent maternal or fetal compromise develops.</p> <p>Clinicians attending women who are labouring and birthing in water must have appropriate training and demonstrated competence in the management of women undergoing warm water immersion (WWI) and in the conduct of a waterbirth and be familiar with related clinical practice guidelines.</p>	<p>Consensus-based recommendation</p>

Facilities that plan to offer immersion during labour and waterbirth need to establish rigorous protocols for candidate selection; infection control and occupational health and safety procedures; and exclusion criteria including moving women from pools if urgent maternal or fetal concerns or complications develop.

Clinicians attending women who are labouring and birthing in water must have appropriate training and demonstrated competence in water immersion and birth and related clinical practice guidelines.

Waterbirth may remain outside a clinician’s scope of practice due to lack of training or personal belief. In the event that that a clinician competent in waterbirth is not available to facilitate a woman’s request to birth in water, it is recommended that the woman leave the pool.

Recommendation 2	Grade
<p>Women should receive information about labour and birth in water in the antenatal period, and the benefits of warm water immersion and waterbirth should be discussed at that time. This allows adequate time to, to discuss WWI and the choice of waterbirth so that an informed decision can be made.</p>	<p>Consensus-based recommendation</p>

4.2.1 What are the recommendations in relation to obtaining consent?

Institutions are encouraged to obtain informed consent from women who choose to use warm water immersion for labour and/or waterbirth, prior to the onset of labour.

4.2.2 Unplanned birth in water

The woman must be aware that plans to undertake first stage labour and/or birth in water may need to be reconsidered at any time, depending on changes in the woman's or baby's condition during either pregnancy or labour.²

Women who choose to labour immersed in water but with the intent of leaving the water for delivery should be afforded every support in fulfilling their desire by having appropriate protocols and arrangements in place to minimise the likelihood and hazards associated with unplanned birth occurring immersed in water.

Nevertheless, a proportion of women will birth in water when that was not the prior intent, usually, but not always, as a result of rapid progress in the second stage.

The clinician supporting a woman undertaking water immersion in first stage labour should be prepared for the event of a woman giving birth in water even if this was not the woman's original intent.²

4.3 Issues to be considered with WWI during labour and birth?

4.3.1 Fetal surveillance

Fetal heart rate monitoring should be undertaken as per RANZCOG guidelines. Continuous electronic fetal monitoring (CEFM) is only possible using telemetry, which is not often available; in this scenario fetal surveillance is limited to intermittent auscultation, usually with a hand held Doppler device.

Women requiring continuous electronic fetal monitoring (CEFM) during labour may utilise WWI, provided that adequate telemetry equipment is available.

4.3.2 Progress of labour

Vaginal examination to assess the progress of labour may be performed under water if deemed necessary.² However this is dependent on the clinician's ability to perform this procedure under these circumstances and the woman is usually asked to leave the water if findings are not certain. WWI should not be used as a reason to delay procedures such as vaginal examination. There is no quality evidence attesting to the safety of vaginal examination whilst immersed in water.

4.3.3 Oxytocin infusion

Oxytocin augmentation of labour may not be possible (as CEFM is obligatory and telemetry may not be universally available).

4.3.4 Third stage of labour

There is also currently no reliable evidence that can be used to inform women regarding the benefits and risks of WWI during the third stage of labour, although there are theoretical risks such as water embolism surrounding such a practice. Best practice suggests that the woman should be assisted to exit the birth pool / bath after water birth to an environment where the management of third stage can be safely performed, where she can have skin to skin contact and breastfeed with her baby, and where an accurate estimation of blood loss can be done.

Recommendation 3	Grade
Staff must be trained in, and have practiced obstetric emergency drills in the correct procedure to assist the woman to leave the water in an emergency situation and manage the emergency appropriately.	Consensus-based recommendation

4.3.5 Obstetric emergencies

- In the rare case of obstetric emergencies (e.g. shoulder dystocia and maternal collapse) it is essential that the woman is removed as quickly as possible from the bath. These conditions cannot be appropriately managed when the woman is immersed in water.

- Staff must be trained in, and have practiced emergency drills in the correct procedure to assist the woman to leave the water in an emergency situation.
- Emergency clinical scenarios can be associated with substantive occupational health and safety issues. Significant hazards exist when trying to transfer a patient rapidly from a birthing pool/bath onto a bed, particularly when flooring can be wet and slippery, and the woman compromised or unconscious. Electrically powered hoists are essential in such a setting in order to minimise risks to the woman and attending staff.

4.4 Maternal and neonatal sepsis with WWI during labour and birth?

Contamination of the water with enteric bacteria is inevitable and cases of neonatal and maternal sepsis can logically be expected on first principles. However, it is unlikely that high level evidence of a causal relationship will become available due to limitations on the power of studies that can be undertaken in such a setting. Whilst the Cochrane meta-analysis in 2009¹ showed no significant differences in neonatal infection rates compared with conventional labour and birth, there are no adequately powered prospective studies addressing this issue. It is considered imperative that audit within units offering warm water immersion in labour include careful collection of data relating to maternal and neonatal sepsis.

Positive Group B Streptococcus (GBS) vaginal swabs during pregnancy are not a primary contraindication for water immersion provided that antibiotics guidelines are adhered to^{5,6}. Women with ruptured membranes for more than 18 hours may utilise immersion in water during labour and birth provided that the recommended intravenous antibiotics are administered^{5,6}.

4.5 What are the recommendations in relation to audit and research?

Recommendation 4	Grade
It is considered imperative that regular (at least annually) audit be conducted in units offering warm water immersion in labour and water birth. These audits should include collection of data relating to the various maternal outcomes such as use of alternative analgesia, length of labour and maternal intervention rates and neonatal outcomes such as unexpected nursery admission. These audits should be available for peer review setting, such as a perinatal morbidity and mortality meeting. Additionally evaluation should be conducted to ensure adherence to published guidelines on WWI and water birth.	Consensus-based recommendation

It is incumbent on any facility offering warm water immersion for labour and/or birth to carefully collect and scrutinise appropriate audit data in a peer review setting. In addition to the various measures of maternal and neonatal outcomes, given the lack of high quality data with which to advise women on this issue, further research is needed. It is imperative that all such research is adequately powered, appropriately structured and registered, randomised and is analysed according to intention to treat. Issues addressed should include maternal well-being, birth outcomes, incidence of obstetric and neonatal emergencies and rates of neonatal admission to special care nursery.

5. References

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2. Department of Health South Australia. SA First stage labour and birth in water policy 2010. Available from: <http://www.sahealth.sa.gov.au/wps/wcm/connect/ae527200465ec14d8572ff2e504170d4/Policy-FirstStageBirthInWater-SAHealth-20101221.pdf?MOD=AJPERES&CACHEID=ae527200465ec14d8572ff2e504170d4>.
3. Johnson P. Birth under water: To breathe or not to breathe. BJOG : an international journal of obstetrics and gynaecology. 1996;103:202-8.
4. Harper B. Birth, Bath, and Beyond: The Science and Safety of Water Immersion During Labor and Birth. Journal of Perinatal Education 2014;23(3):124-34.
5. Department of Health (Western Australia). Statewide clinical guidelines for women requesting immersion in water for pain management during labour and/or birth. 2017.
6. Cohain JS. Waterbirth and GBS. Midwifery Today. 2010;4:9-10.
7. National Health and Medical Research Council. NHMRC additional levels of evidence and grades for recommendations for developers of guidelines. Canberra2009.

6. Other suggested reading

Chia-Jung Wu, Ue-Lin Chung. The decision-making Experience of Mothers Selecting Waterbirth. Journal of Nursing Research 2003; Vol.11: 4, pp 261-267.

Cooper M, McCutcheon H, Warland J. A critical analysis of Australian policies and guidelines for water immersion during labour and birth. 2017 Women and Birth. <https://doi.org/10.1016/j.wombi.2017.04.001>

Geissbühler V, Eberhard J, Lebrecht A. Waterbirth: water temperature and bathing time – mother knows best! Journal of Perinatal Medicine 2002; Vol.30, pp 371-378.

Lukasse M, Rowe R, Townend J, Knight M and Hollowell J (2014). Immersion in water for pain relief and the risk of intrapartum transfer among low risk nulliparous women: secondary analysis of the birthplace national prospective cohort study. BMC Pregnancy and Childbirth 2014:60 doi:10.1186/1471-2393-14-60

Richmond H. Women's experience of waterbirth. The Practising Midwife 2003; Vol.6: 3, pp 26-31.

Wickham S. The birth of water embolism. The Practising Midwife 2005; Vol.8: 11, p 37.

7. Links to other College statements

Evidence-based Medicine, Obstetrics and Gynaecology (C-Gen 15)
[https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20General/Evidence-based-medicine,-Obstetrics-and-Gynaecology-\(C-Gen-15\)-Review-March-2016.pdf?ext=.pdf](https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20General/Evidence-based-medicine,-Obstetrics-and-Gynaecology-(C-Gen-15)-Review-March-2016.pdf?ext=.pdf)

8. 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 Janet Vaughan	Deputy Chair, Obstetrics
Associate Professor Ian Pettigrew	EAC Representative
Dr Tal Jacobson	Member
Dr Ian Page	Member
Dr John Regan	Member
Dr Craig Skidmore	Member
Associate Professor Lisa Hui	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 July 2008 and was most recently reviewed in July 2017. 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 July 2017 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 B 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.⁷ 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.