

Water Immersion for Labour and Birth.

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Aim

To present the best available evidence to facilitate safe and effective use of water immersion during labour and birth in all birth settings. It should be noted that there is currently limited evidence available on how to care for women in the pool. The majority of evidence considers outcomes rather than specific aspects of care, therefore some of the recommendations for care in this guideline are based on advice published by midwives who have become experts in the use of the water immersion for labour and birth.

Introduction

Water immersion is an evidenced based recognised form of effective analgesia in labour and birth¹. Water increases women's choices of analgesia during childbirth and is an acceptable option for most women². Water can provide a calming environment for women and aids mobility during labour and birth. During labour water immersion stimulates the right neuro-hormonal response to enhance uterine activity, and provide effective pain relief, thus reducing the need for an epidural and linked intervention. Water immersion during labour is not associated with any maternal/neonatal adverse outcome^{3,4,5}, including reduced five minute APGAR scores, increased neonatal infection rates, admission to neonatal units or extensive perineal trauma.

Current evidence around the use of water immersion during labour and birth suggests:

Randomised controlled trials

- Reduced need of pharmacological analgesia.
- Reduced chance of requiring augmentation during 1st stage of labour.

Non-randomised studies

- More intact perineum's in nulliparous women
- Fewer episiotomies
- Overall incidence of less 3rd and 4th degree perineal trauma.
- Shorter overall labour

Qualitative studies

- Women report better birth experiences and report a greater sense of control.

A recent Cochrane systematic review³ reported mostly low or moderate grade evidence around water immersion for labour and/or birth, and no study identified was conducted in a midwifery led setting. It concluded that water immersion during the first stage of labour has little effect on mode of birth or perineal trauma, but may reduce the use of epidural analgesia. There is no evidence to suggest advantages/disadvantages in water immersion for the actual birth, however where women request this then it should be supported unless there are 2nd/3rd stage risk factors. There is no significant difference in adverse maternal/neonatal outcomes when comparing labours in and out of water. There is insufficient evidence on the timing of immersion into water in the first stage of labour therefore there is no restriction on women using the pool at any time in early or first stages of labour. 'The Pool study'⁶ is a large multicentre RCT study currently in progress in the UK, it is

aiming to improve the quality of the evidence base around water immersion and the results of this will be considered once available.

NICE¹ suggest all healthy women with uncomplicated pregnancies should be offered water immersion for analgesia during labour. Many women with complexities will also be suitable to use water immersion for labour and/or birth.

Criteria for women

All Women wishing to use the pool for labour and or birth should be assessed for their suitability (see Appendix 1). Documentation of all discussion is essential.

Midwives should provide instruction to women in safe entry to and exit from the birthing pool in line with manufacturers recommendations. This is to enable safe independent access and egress from the birthing pool.

Criteria for midwives

- Midwives should have been involved in at least one water birth before taking responsibility for a water birth.
- When taking on the responsibility of a water birth, for the first time, the midwife should be supported for the birth by a second midwife experienced in water birth.
- Midwives should seek opportunity to complete 1 supported birth during their induction or preceptorship.
- Ideally 2 health care workers should be freely available for the birth if happening in water.
- The midwife should be familiar with infection control measures and emergency pool evacuation procedures, including where appropriate lifting equipment is stored and how it is used.
- Annual emergency evacuation training should be evidenced.
- A midwife should report any additional manual handling restrictions to the coordinator at the beginning of every shift. These additional restrictions should be supported by an occupational health plan.

General practice precautions

- Always use PPE in line with H&S and COSHH (Personal protective equipment-gauntlet gloves/fluid repellent gowns/eye protection).
- Always run the water faucet freely for 2 minutes prior to filling the pool.
- Keep the water as clean as possible, use a single patient use disposable sieve to remove any maternal faeces, blood clots or meconium.
- If the pool is heavily contaminated the woman should be advised to leave the pool and the pool emptied, decontaminated and refilled.
- Use single use disposable thermometer to monitor water temperature.
- Keep clear of draughts but maintain good ventilation.
- Staff should follow manual handling guidelines ref static loading and should not lean forward over the side of the pool for extended periods. Cushioned kneeling mats and saddle stools can be used to enable attendance to occur with a straight back. The midwife should use minimal handling skills, and manual handling knowledge to care for and protect his/her own back. Further information can be found in the manual handling competency file: Ergonomic solutions for Midwifery (SBUHB, updated 2020).

- If continuous electronic fetal monitoring (CEfM) is required the telemetry CTG can be used in the water. The midwife must ensure that a good quality recording. Fetal scalp electrodes should not be used in the water.
- Women who have received opiates can use the pool if two hours have passed since administration, and the woman is not drowsy.
- Ensure electrical devices are kept away from the pool and out of reach of splashing water.
- Clean up any spillages or splashes immediately.
- Use gauntlet gloves for all care provided in a birthing pool including vaginal examinations.

Homebirths

- For women planning homebirth a water birth assessment should be completed with the woman and her birth partner at around 36/40 (Appendix 4).
- It should be advised that the pool should be situated on the ground floor, or on a floor capable of taking the weight (See manufacturer guidance).
- If the pool has been used before then a pool liner will be required.
- Inflatable/hired pools for home birth - It is important that women are advised not to pre fill birthing pools as there is a small risk of Legionella Pneumophila (Legionnaire Disease) from filling birthing pool prior to the onset of labour. Where the temperature has been maintained by the use of a pump or heater there is risk of Legionnaire disease and these pools should NOT be used for labour and birth. Any pumps used should be used solely for pool emptying and NOT for recirculation of water.
- A clean hose set should be used.
- The woman should be asked to supply a new sieve, thermometer and mirror to support the midwife to provide care for her during the water birth.
- The maintenance of the pool and the regulation of water temperature during labour is the responsibility of the woman and her birth support but will be monitored by the midwife.

Water Immersion Assessment at onset of labour (Appendix 1)

All women wishing to use the pool should be assessed for their suitability prior to entering the pool; this is achieved by using the water immersion assessment tool. The assessment of the appropriate use of water immersion is an ongoing process, which may change as the labour progresses. All assessments are to be documented in the maternal intrapartum records. The care plan assigned does not change the lead professional.

The 1st stage of labour

The minimum standards of care.

- Fill the pool so the water completely covers the woman's abdomen and comes up to her nipple level when sitting or kneeling. Insufficient water levels will not create buoyancy which is thought necessary to trigger the release of endorphins and oxytocin and reduce the production of stress hormones. Deep water also provides support for the body and aids mobility. The midwife must take into consideration the filling limitations of the pool.

- It is suggested that the woman exit the pool and mobilise for approximately 30 minutes, two hours after the first immersion to reactivate the chemical and hormonal processes described above. Thereafter continue to advise the woman to leave the pool every 1.5 – 2.0 hours for a period of mobilising.
- Where labour dystocia is first identified and the woman has not been in water, the use of water immersion along with, hydration and nutrition, good bladder care, consideration of the environment, amniotomy (where required), may reduce the chance of needing synthetic oxytocin to augment labour, and should be recommended.
- Check the woman's temperature and water temperature hourly whilst in the pool and record on partogram. Water temperature should be controlled by the woman but should not exceed 37.5°C to avoid maternal hyperthermia¹.
- Monitor and record all other maternal/fetal observations, and progress of labour as per local guideline.
- Encourage the woman to drink plenty of fluids, isotonic drinks may be beneficial compared to water¹. Consideration should be given to excessive hydration which may affect oxytocin levels and in rare cases lead to hyponatremia. Literature around this is sparse however it is recommended that total fluid volumes in labour do not exceed >2500mls⁸.
- Encourage the women to pass urine frequently.
- Entonox may be used in the pool.
- A woman should not be left alone in the pool.
- Partners can be in the pool with the woman so long as trunks/costume is worn and they are willing to leave the pool if asked/necessary.
- If there is a rise in maternal temperature greater than 1 degree or an increase between 37.5 – 37.9 degrees:
 - The pool temperature must be lowered and the room cooled
 - Increase oral fluids
 - Change maternal position
 - Check the water depth
 - Ensure that the maternal pulse and fetal heart is not raised
 - Repeat temp in 30 minutes and if still raised leave the pool.
 - Repeat again in 30 minutes and if continues to be raised provide care accordingly, including transfer to the obstetric unit where required, the pool will no longer be recommended.
- A temperature of greater than 38 degrees necessitates that the woman exits the pool.
- If contractions become irregular or slow progress in labour is confirmed on vaginal examination, women should be advised to leave the pool to mobilise and adapt a more upright position. Where contractions increase and labour progresses the woman can be encouraged to return to the pool.
- Encourage the woman to leave the pool in the event of any deviations from normal.

Second stage of labour

Midwives experienced in water birth should facilitate the birth. Individual assessment should continue. Some women may need to get out and mobilise to increase their contractions, some may find it difficult to push effectively in water, and some women

may have pre-disposing factors where leaving the pool during the second stage would be recommended.

Midwives should be aware of maternal behaviour that suggests second stage, this can be less obvious when women labour in water.

- Record maternal and fetal observation as per guidance for 2nd stage of labour.
- Check and record the water temperature every 15 mins. Water temperature should be maintained at 37-37.5°C in the second stage.
- The woman's temperature should continue to be monitored hourly.
- The woman should not be encouraged to push before she has the natural urge; sustained and directed pushing is associated with lower Apgar scores and umbilical artery pH8.
- Whenever possible, a 'hands off' birth, supported by quiet verbal guidance by the midwife, should be practised to minimise stimulation of the baby underwater. The woman can be encouraged to reach down and support her baby as it emerges. Be aware that restitution still occurs under water. The attending midwife should be aware of the normal time frame between head to the birth of the body (the body should be born with the next contraction if good maternal effort is made). If delay is suspected prompt action should be taken. See below for managing shoulder dystocia in the pool.
- If the woman raises herself out of the water and exposes the fetal head the birth should continue out of water.
- Do not feel for the cord.
- Never clamp and cut the cord under water.
- Cord clamps should be readily available and midwives should be alert to the possibility of cord rupture. If this occurs the cord should be clamped at the umbilicus as quickly as possible and the neonatal team should be informed.
- Midwife or woman should bring the baby to the surface keeping the baby face uppermost, where possible.
- Babies born underwater often do not cry immediately, and may remain blue-tinged for a longer period compared to those born out of water. The heart rate should be checked and spontaneous respiratory effort observed.
- Midwives should be mindful of neonatal thermoregulation- Dry the baby's head and apply a hat. keep the body of the baby submerged in the water and maintain uninterrupted skin to skin contact.
- Where managing a physiological 3rd stage in the water check the water temperature every 15 minutes to maintain it at 37-37.5 degrees.
- The cord should not be clamped earlier than 1 minute after the birth unless there is concern about the integrity of the cord or the baby's well-being.

Third Stage of Labour ^{1,9,10}

More research is needed on third stage management in the pool, there is no evidence regarding the benefits and risk of experiencing third stage of labour under water. An 'absence of evidence' requires caution when making any professional recommendation to women. In some areas it is common practice to complete the 3rd stage under water and there have been no known occurrence of water embolism from managing the 3rd stage in the pool. There have been no studies comparing the management of the third stage in or out of the water.

Active Management

Can be undertaken under water, out of the pool or in the emptied pool according to maternal request, however, you should ensure the mothers leg is lifted out of the water prior to giving intramuscular injection. Oxytocic's may also be given in the deltoid muscle (upper arm) if preferred and may be less disruptive.

Physiological management¹⁰

- Where the cord has stopped pulsating after 5 minutes leave cord intact with baby skin to skin.
- If the cord is pulsating over 5 minutes, cut and clamp cord as the warm water may prevent vasoconstriction. Then unclamp placental end to allow the blood to continue flowing into the pool.
- If cord blood is needed cut and clamp cord after 1 minute, take the blood and unclamp the placental end and allow blood to drain into the pool.

Any delay in the 3rd stage, or excessive bleeding, encourage the woman to leave the pool.

Examination of the perineum should be conducted out of the pool and suturing of perineal tears delayed for a least 1 hour to allow for water retention in the tissues to dissipate (unless bleeding profusely)¹¹.

Care in special circumstances

Early detection of deviations from the normal is essential when caring for women with an increased chance of complications in the pool.

Group B Streptococcal Infection (GBS)^{12,13,14}

- Women who are GBS positive, without other risk factors should be supported in their choice to use water. No significant differences in neonatal infections after water birth have been reported.

Induction of labour

- Women who labour with prostaglandin +/- Artificial rupture of membranes or mechanical methods of induction of labour can be offered use of the pool providing there is no evidence of tachysystole/hyper-stimulation and a water immersion assessment has been performed.
- The woman should be encouraged to leave the pool to mobilise if her contractions become irregular, infrequent, short lasting or weak. It is essential that the effectiveness of contractions is monitored closely to ensure the labour continues to progress (See care in first stage of labour).
- The fetal heart should be monitored as per unit guideline using telemetry where CEfM is indicated and accepted by the woman (See IOL guideline).
- Women undergoing induction of labour by continuous oxytocin infusion are not able to use the pool due to the electrical pump and proximity to the pool.

Water immersion for labour and birth for women who have had a previous caesarean section.

The guideline on Birth After Caesarean Section should be referred to.

- Continuous fetal Monitoring should be recommended using telemetry¹³.
- Assessment must confirm fetal and maternal wellbeing including the absence of tachysytole/hyper stimulation prior to entering the pool.
- Women should be individually assessed as to the need for a cannula. Nice (2019) state, where there is no other comorbidity, that routine cannulation should not be performed in this group of women. ObsCymru recommends consideration of cannulation only. A group & save and full blood count should be taken on admission¹³.
- Maternal pulse should be monitored every 15 minutes to detect sudden increase in heart rate. Sudden tachycardia can be a result of over-stretching or dehiscence of the scar causing serous fluid to leak onto the peritoneum initiating a shock response.

Where women need a cannula

Where early cannulation is required this should be completed out of the pool. Women who choose to use the pool with a cannula in situ should be advised to keep the cannula free of the water. Should the hand be submerged and the integrity of the dressing is compromised, the cannula site should be cleaned and redressed.

Emergency Care

Managing Shoulder Dystocia

- Call for immediate assistance.
- Encourage the woman to change position in the water – all fours, deep squat or left lateral.
- If birth not achieved with the next contraction and manoeuvres are required the women should exit the pool immediately.
- It should be noted that when the woman lifts one leg to exit pool the baby may suddenly birth. The woman should be supported when leaving the pool by someone other than the midwife facilitating the birth. The midwife facilitating the birth should support the fetal head.

Unexpected maternal collapse – Maternal collapse in a birthing pool is a very rare event.

- Assess level of consciousness. Call for immediate assistance.
- Follow evacuation procedure. Appendix 3.
- Once out of pool and secure start immediate assessment and treatment as required.

Cleaning and decontamination of static birth pools

- Cleaning of static pools see appendix 2 and 5.

Auditable standards.

Monthly assurance audits will monitor pool cleaning and maintenance Appendix 5.
Annual audit of 20 records should include;

- Documentation of water immersion holistic assessment
- Observations in the first stage of labour during water immersion.
- Observations in the second stage of labour during water immersion.
- Appropriate fetal heart monitoring in line with water immersion assessment tool.
- Observations during 3rd stage of labour.

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Appendix 1 – Water Immersion Assessment Tool

Undertake a holistic assessment using this tool prior to the woman entering the pool. Remember this is an ongoing assessment which may change as the labour progresses. The initial assessment and any changes should be documented in the maternal records. The risk level assigned with this tool does not change the lead professional. * Indicates CEfM via telemetry is recommended.

Care plan 3

Not advised to use pool

- <37 weeks
- Pre term rupture of membranes.
- Deviation in maternal observation (NICE,2017).
- Significant meconium stained liquor.
- Unable to enter and/or exit pool unaided
- Maternal weight exceeds 130kg at 36/40 or on admission in labour.
- Concerns around fetal heart rate
- FSE indicated
- Requiring oxytocin infusion.
- Received opiates <2 hours ago
- Epidural insitu/Remifentanyl
- APH
- EFW < 10th with < liquor or EDF.
- Congenital abnormality
- Oligohydramnios
- Polyhydramnios with intact membranes and/or ill fitting Presenting Part.
- Active Measles, chickenpox, Parvovirus, Rubella, Hep A, B or C, Herpes.
- Significant cardiac condition.
- Epileptic.
- Diabetic requiring sliding scale
- Unbooked pregnancy
- Multiple pregnancy.
- Present history of significant substance misuse.

Care plan 2

Should be offered water immersion on Labour ward. *Some risk factors require additional recommendation when planning care.

- Group B strep positive (IV antibiotics can be given in the pool)

Offer with CEfM via telemetry

- $\geq 42/40$ *
- IOL following prostaglandins and or ARM* (may require CEfM, see IOL guideline).
- Diet Controlled Gestational diabetes*
- Stable Type 1 or 2 diabetic with Dexcom and continuous infusion pump or orally medicated *
- Obstetric cholestasis*
- VBAC*
- Breech*
- EFW < 10th centile and normal CTG *
- SROM > 24 hours < 48 hours to onset of labour.*

Advise to leave the pool for 2nd stage

- Raised BMI> 35 Nulliparous >40 Multiparous with admission weight < 130kg.
- Hb <85 g/l, Platelets <100
- Prev PPH > 1000mls due to uterine atonia.
- Previous shoulder dystocia, EFW on USS >90th centile.
- Grand multiparty
- Breech Presentation
- All women with any type of diabetes.
- Women on antenatal thromboprophylaxis
- EFW < 10th centile
- Polyhydramnios with ROM and well fitting presenting part..

Care plan 1

Water immersion should be offered in a midwifery led setting.

Suitable for Midwifery led intrapartum care

- Uncomplicated Obstetric history
- No medical history that affects birth.
- Uncomplicated pregnancy
- Cephalic presentation
- 37-42 weeks gestation
- Spontaneous onset of labour or home Induction with 1 proppess (as per IOL guideline)
- SROM >37/40 <24 hours prior to onset of active labour.
- BMI <35 or for Nulliparous, BMI <40 for Multiparous with previous uncomplicated vaginal birth.

Appendix 2 – Static birthing pool cleaning and decontamination protocol

1. Ensure the room is well ventilated, remove and dispose of the thermometer to avoid blocking the pool waste outlet
2. Ensure compliance with Standard Infection Control Procedures and PPE
3. Before emptying the pool remove any debris using a disposable sieve to prevent debris from blocking the pool waste outlet
4. Empty the pool / bath
5. Use a general detergent and new disposable cloth or mop head, clean the pool/bath of any blood and small bits of debris.

When cleaning the pool / bath

- a. Start at the tap outlet - do not put the cloth/mop in to the nozzle, and finish at the base of the tap and then clean the tap handles
- b. Clean around the top rim of the pool initially
- c. Move inwards cleaning around the inside of the top rim over the overflow - work downwards towards the waste outlet.

DO NOT TAKE A DIRTY CLOTH BACK OVER AREAS ALREADY CLEANED

- d. Rinse the pool/bath with warm water
 - e. Dispose of the cleaning cloth/mop in orange waste bag
 - f. Dry all surfaces with a disposable cloth or towel
 - g. Dispose of gloves and apron in orange waste bag and decontaminate hands
6. Ensure compliance with Standard Infection Control Procedures and use a plastic apron, gloves and eye protection.
 7. Mix a clean bucket with chlorine releasing solution to = 1000ppm.
 8. Clean the pool with the chlorine releasing solution using the process described in point 5. a – d and leave in place for 15 minutes.

DO NOT DRY THE POOL

9. Rinse the pool thoroughly using cold water starting at the tap and work down towards the waste outlet.
10. Dry the entire pool with a clean mop head or towel
11. A new mop should be used each time (therefore single patient use). Buckets should be cleaned and dried after use and stored inverted.
12. The pool should be cleaned daily even if not in use.
13. Taps should be opened and flushed for at least 2 minutes daily and prior to use.
14. Records of daily cleaning should be kept in the relevant areas.

Appendix 3 - Emergency Evacuation from Birthing Pool -Safe System of Work

Emergency Evacuation from Birthing Pool with a net - Safe System of Work	
<p>Assess level of consciousness</p>	<p>Action needed: SUMMON HELP</p> <p>The midwife will take responsibility for maintaining the woman's airway and ensure her face is held clear of the water</p>
<p>Equipment to be used: Trolley/bed Evacuation Net Slide Sheets</p> <p>Number of people required for safe evacuation: Minimum of 3-5 Maximum.</p> <p>Maternal Weight limitation= 130kg.</p> <p>Where maternal weight exceeds the limits for a safe evacuation women are unable to use a birth pool on health board premises.</p> <p>*Due to training requirements Hoists should <u>not</u> be used.</p>	<p>DO NOT DRAIN THE POOL – The buoyancy offered by the water will assist staff to position the net and to support and turn the woman. Fill pool to highest level to aid evacuation.</p> <p>Staff member to assist the midwife to turn the woman so that she is floating on her back (if the woman is sitting on the step then leave her in this position).</p> <p>Staff member to prepare the trolley/bed in suitable position to receive the woman. Slide sheets should be placed on the trolley/bed to assist with sliding woman onto the trolley/bed</p> <p>Two members of staff will position the evacuation net under the woman. One staff member should enter the pool to aid correct placement of the net and to support the womans legs during the slide.</p> <p>The midwife must move to one side of the woman but remain in charge of the airway.</p> <p>Using clear commands e.g. "Ready, Steady, Slide" Slide the woman clear of the pool and onto the trolley/bed</p> <p>Remove the net and the slide sheets from under the woman once she is safely located on the trolley/bed. Wheel bed trolley to a dry area.</p> <p>Keep the woman warm with towels/blankets and assess and treat as required.</p>

Appendix 4 – Risk Assessment for use of water in labour and birth at home

RISK ASSESSMENT FOR USE OF WATER IN LABOUR AND BIRTH AT HOME

ADDRESSOGRAPH

DATE OF ASSESSMENT

1. Carry out a manual handling risk assessment prior to and during labour

Date of assessment prior to labour: _____

Date and time of assessment in labour: _____

2. Criteria for use of water

All women suitable for homebirth as per the All Wales Midwifery-Led Care Guidelines and the All Wales Clinical Pathway for Normal Labour are suitable to labour and birth in water at home.

3. Pool check

Is the pool situated on the ground floor?	Yes	No
Is there a new disposable liner?	Yes	No
Is there a new disposable hosepipe?	Yes	No
Adequate clearance around the pool?	Yes	No
Are the walls of the pool sturdy enough for the woman or midwife to lean on?	Yes	No

4. Advice to the woman

- Birth partner to be responsible for filling, maintaining and emptying pool and ensuring temperature maintained as per guideline.
- Do not pre-fill the pool and maintain with a heater prior to labour due to a risk of Legionnaire Disease. Fill at time of labour.
- Ensure new liner and hosepipe used and disposed of afterwards.
- Pool bottom should be non-slip.
- To supply a new sieve, thermometer and mirror.
- The woman may be advised to leave the pool if a deviation from the Normal Care Pathway occurs and/or in the event of an emergency.

- In the event of the woman collapsing in the water she should be slid over the top of the pool onto a dry area with the assistance of the birth partner.
- Paramedics will be called if transfer into an obstetric unit is indicated and in the event of an emergency.

5. Equipment required:

- Birthing pool
- Single use disposable liner
- Single use disposable hosepipe
- Plentiful supply of hot water
- Stool/step for pool access if needed
- Sieve
- Thermometer
- Mirror
- Towels

Signature of woman:

Print name:

Date:

Signature of midwife:

Print name:

Date:

Checklist for Clinical Guidelines being Submitted for Approval

Title of Guideline:	Water immersion for labour and birth
Name(s) of Author:	Victoria Owens
Chair of Group or Committee approving submission:	Labour Forum
Brief outline giving reasons for document being submitted for ratification	New Guideline
Details of persons included in consultation process:	Antenatal forum members
Name of Pharmacist (mandatory if drugs involved):	N/A
Issue / Version No:	1
Please list any policies/guidelines this document will supercede:	N/A
Date approved by Group:	20 January 2021
Next Review / Guideline Expiry:	January 2024
Please indicate key words you wish to be linked to document	Water immersion for Labour, Water immersion for birth, water birth, pool birth, care in water, Birthing pool.
File Name: Used to locate where file is stores on hard drive	