# **Guideline for a Safe Water Birth**

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The aim of this guideline is to provide a review of information on labor and birth in water and to suggest possible strategies to minimize the potential hazards to mothers and infants. It can also be used to promote the maternal and infant benefits, which may arise from choosing this type of birth experience, but are not easily quantifiable. It is written with the belief that clinically sound, evidence based guidelines improve quality of care. These recommendations are not intended to dictate an exclusive course of management or treatment. They must be evaluated with reference to individual client's needs, resources and limitations unique to the place of birth and variations in client choices.

#### Rationale

The therapeutic properties of warm water immersion have been known for centuries. Baths, showers and whirlpools have been used for comfort during labor for many years. Over the past two decades the use of warm water immersion for the birth of the baby has aroused interest in many countries and an increase in the number of women requesting this option for both hospital and out-of-hospital births is occurring.

Waterbirth International has reviewed the best available evidence and offers this guideline to assist midwives and women in their decision making process around the use of water immersion for labor and birth. The body of evidence is small but growing.

### Evidence

Maternal and neonatal outcomes after water immersion for labor and birth have been assessed in two large surveys over a four year period in England and Wales (Alderdice, Renfrew & Marchant, 1995; Gilbert & Tookey, 1999) Researchers reviewed 4693 and 4032 births, respectively, where water immersion was used and found no difference in outcomes for women and their newborns compared to a cohort group of low risk women who did not use water.

The perinatal mortality rate for these births was comparable to other low risk births in the UK. (Gilbert and Tookey 1999). This study tried to estimate mortality and morbidity rates for babies delivered in water. The data collected was compared to other sources of data providing similar estimates for babies delivered conventionally to low-risk women. They examined adverse outcomes, which were reported over a two-year period between 1994 and 1996 from approximately 4,000 births in water. 1500 consultant pediatricians were surveyed and asked to report any cases of baby deaths associated with waterbirth. None of the five perinatal deaths recorded among the waterbirths was attributable to delivery in water. Admissions to special care baby units were slightly lower for the water-born babies than admissions for other low-risk babies. This was a landmark study in providing significant reassurance about the safety of waterbirth.

Other researchers (Burns 2001; Lenstrup et al, 1987; Rush et al, 1996; & Waldenstrom et al, 1992) have made similar outcome reports. A recent Canadian randomized control trial reported women experienced less pain after water immersion than their non-immersion counterparts and over 80% of the water immersion group said they would use the tub in subsequent labors (Rush et al, 1996).

There have been a few highly controversial reports in the literature, especially in the journal Pediatrics on the negative effects of water immersion for babies. "Water Birth: a near drowning experience (Nuygen et al, 2002) suggests that every case of waterbirth should be evaluated as a possible fresh water drowning. The authors' conclusions that the use of water for labor and birth may contribute to adverse outcomes should be viewed with considerable caution. There are several methodological problems with this case study and these results are not congruent with the findings of many large trials. It is clear more research is needed into this form of care. But opinion pieces should be viewed at just that, opinion and not referred to as scientific or medical evaluation of the evidence.

In the absence of a substantial body of evidence on the use of warm water immersion for labor and birth, the potential advantages and disadvantages, which follow, are primarily derived from experience. This guideline will be updated as more evidence becomes available.

### Eligibility

Water immersion for labor and birth should be available to all clients who request it, who have been screened and who have discussed the risks and benefits with their care provider. Some practices may choose to use a standard informed consent form for the use of warm water immersion.

# Water Immersion Defined

Water immersion must be defined at providing a depth of water which enables the mother to sit in water that covers her belly completely and comes up to her breast level or kneel in water on her haunches which comes up to just below her breast level. Any amount of water less than this does not constitute true immersion and will not create the buoyancy effect and produce the chemical and hormonal changes which enhance a more rapid labor. After an initial immersion of approximately thirty minutes the body responds by releasing more oxytocin, but only if the body experiences deep immersion, leading to buoyancy.

# When to enter the bath in labor

It has been reported in the literature that labor slows down or stops if the woman enters the bath too soon. Guidelines were established to prevent a woman from entering the bath before the start of active labor, by definition: established labor pattern, dilation of the cervix to 4cm or greater and the need to concentrate during the contraction. We argue that observation has led us to believe that a woman should be given the opportunity to use immersion as soon as her body and her brain have the desire to bathe. Women have been observed in very early labor relaxing, letting go of fear and progressing quickly to an active and pushing phase of their labor. Using the water effectively often requires a "trial of water," to see how the mother will respond. It has been noted with the advent of underwater continuous fetal monitoring that contraction patterns once thought to space out and become less frequent were in fact exactly the same in or out of the water. The mother's response to those contractions in the water was vastly different from the response on the bed, thus making everyone believe that they were less intense.

The chemical and hormonal effects of immersion take effect after no less than twenty minutes and peak around ninety minutes. It is therefore suggested that a change of environment, such as getting out and walking be recommended after about two hours of initial immersion. The midwife can make an evaluation of the mother's condition at that time. Getting back in the water after thirty minutes will reactivate the chemical and hormonal process, including an sudden and often marked increase in oxytocin.

Dianne Garland, registered midwife, lead waterbirth researcher in England and the author of, "Waterbirth: An Attitude to Care," says the following:

" Just as labors can be slower or stop out of water so is true of water. Changes to the woman's body are normal in labor and each of us will tolerate different lengths of first and second stage. Just as we all deal with different amounts of fatigue and stress, so each woman is individual and should be treated as such in labor. The point of this with water labor and waterbirth is that as each woman is an individual, so her labor should be cared for, within the normal parameters set by ourselves as autonomous practitioners. Or within the maternity units where we work. Fundamental changes to normal practice may need to be made in units where active management of labor prevails."

# Summary of benefits for labor and birth in water

- Facilitates mobility and enables the mother to assume any position which is comfortable for labor and pushing
- Speeds up labor
- Reduces blood pressure
- Gives mother more feelings of control
- Provides significant pain relief
- Promotes relaxation
- Conserves her energy
- Reduces the need for drugs and interventions
- Protects the mother from interventions by giving her a protected private space
- Reduces perineal tearing
- Reduces cesarean section rates
- Is highly rated by mothers typically stating they would consider giving birth in water again
- Is highly rated by midwives
- Encourages an easier birth for mother and a gentler welcome for baby

#### **Theoretical Potential Disadvantages**

- Decrease in uterine contraction strength and frequency, especially if entering the bath too soon
- Neonatal water aspiration
- Maternal hyperthermia may contribute to fetal hypoxemia
- Neonatal hypothermia
- Cord immersion in warm water may delay vasoconstriction, increasing red cell transfusion to the newborn and promoting jaundice
- Blood loss estimation and assessment not accurate
- Maternal and Neonatal infection may be increase not supported by the evidence
- Risk of acquiring blood born infection or sustaining back injury for caregivers

### Recommended Criteria for the use of a water pool

- An uncomplicated pregnancy of at least 37 weeks gestation
- Established labor pattern good regular contractions
- Reassuring fetal heart tones
- Absence of bleeding greater than bloody show
- Spontaneous or on-going labor <u>after</u> misoprostol or Pitocin

### Contraindications for birth in a water pool

There are no contraindications to labor in water, as evaluated by the literature and from experience. Immersion is a client/provider decision. Birth in water comes with a few **"ABSOLUTE"** contraindications and a few **"CONTROVERSIAL"** contraindications.

### Absolute contraindications

- Pre-term labor
- Excessive vaginal bleeding
- maternal fever> 100.4, or suspected maternal infection
- Any condition which requires continuous fetal heart rate monitoring
- Untreated blood or skin infection
- Sedation or epidural
- Fearful Attendant
- Inflexibility in the client

## **Controversial contraindications**

#### Meconium staining in amniotic fluid

The presence of meconium should be evaluated with fetal well-being and taken by itself as a reason to ask the mother to leave the water. Meconium washes off the baby in the water. Baby can be suctioned as soon as it has been brought to the surface of the water. Some practices are now only limiting thick meconium cases.

# **\*** HIV, Hepatitis A, B, C, GBS

Evidence shows that HIV virus is susceptible to the warm water and cannot live in that environment. Proper cleaning of all equipment after the birth needs to be carried out. Hepatitis should be the discretion of the attending medical caregiver.

There is absolutely no evidence that GBS positive cases should be asked to leave the water. Most hospitals allow IV antibiotic administration while in the water.

#### Herpes

Some providers will cover the lesion, especially if it has peaked and is sloughing off. Others will require a cesarean. Some feel it is safer to deliver in the water due to the dilution effect of the water.

# Breech or multiple births

In the H. Surreys Hospital in Ostend, Belgium, frank breech is an indication for a waterbirth. Their vast experience has led them to believe that the absence of gravity, the warm water and the buoyancy create the perfect environment for a hands free breech birth. Labor in water for both breech and multiples is well documented and recommended. This should be a client/provider decision.

### Induction or augmentation

Many hospital practices will now allow mothers whose labors are initiated by Misoprostal or Pitocin to get in the pool as soon as a labor pattern is established. Some even allow mothers with a Pitocin drip to labor in water, as long as fetal heart rate assessment can be monitored with continuous underwater equipment.

### Intrathecal use

A few hospitals will allow a mother into the water after receiving an intrathecal Monitoring of the baby is suggested as continuous, but some hospitals allow intermittent monitoring.

# VBAC

As the controversy over vaginal birth after previous cesarean section continues, it has been noted that mothers who labor for subsequent births have a much higher success rate in giving birth vaginally. Some hospitals refuse to allow women into the water because they don't provide waterproof continuous fetal monitoring.

### Shoulder Dystocia or Macrosomia with suspicion of Shoulder Dystocia

This is usually considered an obstetric or midwifery emergency by most. Current protocols in most hospitals require the mother who is anticipating a large baby to leave the water. There is mounting evidence that providers find it is easier to assist a shoulder dystocia in the water. It is believed that tight shoulders happen more often because of mom or caregiver trying to push before the baby fully rotates. Better to wait a few contractions, with the head hanging in the water and allow baby to rotate. Because position changes in water are so much easier than dry land, a quick switch to hands and knees or even standing up with one foot on the edge of the pool helps to maneuver baby out. (research indicates that you can't predict shoulder dystocia)

### Tight nucal cord

Under no circumstances should the cord be clamped or cut under the water. Babies can be delivered through the cord and 'unwound' under the water. Be cautious of cord snapping.

### Water temperature at time of birth

Some providers will not allow women to birth in water that is lower than body temperature due to the possibility that the baby will attempt to inhale under the water from a change in temperature. There is no evidence that supports this theory, in fact there is more evidence that now shows that lower water temperatures increase the baby's muscular activity and awareness. Water babies are slow to start breathing due to the delay in stimulation of the trigeminal nerve receptors in the face and around the nose and mouth. You must consider the birth of the baby from the time it leaves the water, not from the delivery of the baby into the water. German midwife, Cornelia Enning, states that babies are more vigorous at a temperature around 92-95 degrees Fahrenheit. If the mother is comfortable in the water, the temperature is OK for baby with only one restrictive parameter - **NEVER higher than 100 degrees Fahrenheit.** 

### Placental delivery in water

There is no reason not to allow the birth of the placenta in water. Objections include inability to judge blood loss, possible water embolism and inability to contain all the by products of conception in one place. Evidence now shows that delivery of the placenta is safe, blood loss can be estimated by color evaluation and determination of where the bleeding is arising and there is absolutely no scientific basis for worry over water embolism. Placenta and pieces can be placed in a floating bowl in the water without difficulty. Cutting and clamping of the cord is not recommended with the delivery of the placenta in the water.

#### Helpful reminders for the use of water immersion for labor and birth

- Midwives should discuss the potential advantages and disadvantages of water immersion for labor and birth with each woman prior to labor.
- The fetal heart should be monitored according to accepted guidelines. Use of a waterproof Doppler is recommended.
- The woman should be encouraged to maintain adequate hydration and leave the pool to urinate at regular intervals.
- The woman should be asked to leave the water if there are any concerns about her or her

baby's well being.

- The water should be kept as clean as possible. Stool and blood clots should be removed from the pool immediately. The pool should be drained, cleaned and refilled if contaminants cannot be easily removed.
- A small amount of blood often looks like a lot. Undisturbed blood in a pool often congeals at the bottom of the pool into a small clot.
- The pool or tub should be deep enough for the mother to assume any position comfortably.
- Encourage mother to help guide her own baby out.
- Suturing may need to be delayed due to water saturation of tissues.
- The baby should be born completely underwater with no air contact until the head is brought to the surface, as air and temperature change may stimulate breathing and lead to water aspiration. If a change in position during delivery causes the baby to come in contact with air, the birth should be finished in the air.
- Care should be taken to avoid undue traction on the cord. There have been reports of cord tearing.
- The warm water helps maintain the newborn's temperature to prevent hypothermia. Keep baby submerged with head out only for best heat conservation. Next to mother is best.
- Encourage breast contact immediately, but breastfeeding is not always possible in the water, especially due to water high water levels.
- You can insert a footstool or other object (husband) to raise a mother up high enough after the birth.
- Birth pools should be cleaned completely between uses with a chlorine-releasing agent. All pumps and hoses should also be rinsed with bleach.
- Outdoor hot tubs are OK to use for labor and birth, if they are cleaned and maintained prior to the labor.
- Jetted pools are ok to use if they are cleaned properly between patient use.
- Small amounts of chlorine or bromine are not harmful to mothers or babies

As when caring for any mother or newborn, the midwife is responsible for using her clinical judgment, responding appropriately to problems that may arise, and for documenting her actions.

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