

Information for Client Discussion Regarding the use of Water during Labor and Birth

The use of water in labor and birth is generally considered safe. However, there are a few risks and contraindications the client should know. Please use this document as a guide in discussing the use of water during labor/birth with your client.

- Benefits, risks and alternatives of water immersion during labor and birth.
- The midwife's training and/or experience regarding waterbirth.
- Reasons why the midwife may ask the client to either exit or not get into the water if the following situations occur:
 - Excessive vaginal bleeding
 - Anemia
 - Concerns about the baby's size or well-being
 - The use of pain relief that causes sedation, dizziness or low blood pressure
 - Moderate to thick meconium
 - Intensive resuscitation of the baby
 - Prolonged or difficult delivery of the placenta
 - Difficulty assessing fundus and/or the amount of postpartum blood loss
 - Elevated maternal temperature
 - Reduction in effective contractions or prolonged rupture of membranes
 - Breech or multiple birth
 - The midwife's ability to manage complications
 - Maternal ability to get in and out of the tub quickly
 - Short cord or cord avulsion
 - At the request of the client or the midwife's discretion
- Agreement from the client regarding standing or leaving the birth pool per the midwife's instructions
- Written instructions on storage and set up of the pool if it will be left at the client's home.
- Awareness of the possible bacteria or other organisms that could be present in the water. These may present a very low risk potential of infection.
- Potential risks associated with birth in water. These risks include:
 - Aspiration of water by mom or baby
 - Bacteria or illness
 - Cord avulsion
 - Thermoregulation of mom and baby

Guidelines for Water Immersion and Waterbirth

Introduction

The use of water immersion for labor and birth is widely used in midwifery care. Benefits of water immersion include increased relaxation, mobility, and pain relief. The safety of water immersion during labor has been established by research, and does not result in reduced APGAR scores, increased neonatal or maternal infections, or increased NICU admissions (Cluett and Burns 2009). Reviews of planned water births attended by a licensed care provider have consistently shown no increased risks to mother or baby (Deckker 2014, Royal College of Midwives 2012). Though rare, individual cases of neonatal infection with Legionella or other bacteria have been reported, but with proper use of pools can be minimized.

Waterbirth is a safe option for the families of Texas. Midwives should be trained in water birth and receive continuing professional development. These guidelines are to serve as a framework for safe water immersion for labor and birth for Licensed Midwives. Studies show that following these guidelines promotes physiologic birth with minimal adverse outcomes.

Criteria for Use of Water Immersion for Labor or Birth

- Mother has received informed choice regarding water birth
- Single gestation at or >37 weeks who is low risk and within the midwife's scope of practice

Relative Contraindications for Entering the Pool

- Presence of meconium
- Excessive intrapartum bleeding
- Breech presentation
- Multiple gestation
- Elevated maternal temperature greater than 100.4
- Non-reassuring fetal heart rate patterns
- Reduced maternal mobility
- The midwife's ability to manage complications
- Active herpes, carrier of MRSA, or untreated skin infection should not enter the pool
- Rupture of membranes without active labor
- Use of agents producing sedation
- Any condition in the Texas Midwifery Board Rules requiring transfer of care
- At the request of the client or the midwife's discretion

Possible Reasons for Leaving the Pool

- Meconium
- Elevated maternal temperature or abnormal vital signs
- Slow progress, reduction in effective or frequency of contractions
- Non-reassuring fetal heart rate pattern or inability to adequately assess fetal heart rate
- Lack of descent during second stage
- Water temperature too hot or cold
- Fecal matter or other contamination that cannot be removed, unless birth is imminent

- Short umbilical cord
- Excessive bleeding
- Use of agents causing sedation
- At the request of the client or the midwife's discretion

Preparation, Filling, and Refilling the Pool

- The pool should be cleaned and disinfected as per the section - **Pool Setup and Cleaning Recommendations**.
- The midwife should direct the filling of the pool. The pool should not be filled before active labor and the water should be changed after 6 hours.
- For portable tubs, a new, disposable liner should be used for each birth. It should remain unopened until pool is ready to be filled.
- A new unused potable water hose should be used each time you fill the pool.
- Hot water should be run from the tap for 3 minutes before connecting the hose and adding water to the pool.
- If well water is used to fill a pool, it should be tested by a Centers for Disease Control & Prevention (CDC) recommended Elite laboratory within 12 months of the EDD.
- The midwife should be able to easily reach the mother from at least two sides of the pool.
- No essential oils, aromatherapy, or other additives should be added to the water. Salt and enzymes are not proven to prevent infection.

Depth and Temperature of Water

- In order to facilitate the physiological response to water immersion and protect the infant from being born in the air and resubmerging into water, the water must completely cover the mother's abdomen, but not reach to the level of her neck.
- The temperature of the water must be comfortable for the mother and below 100.4 degrees F. This temperature is important to prevent maternal and fetal hyperthermia. The water temperature should be assessed before entry to the tub and after adding water and documented in the chart.

Management of First Stage During Water Immersion

- It is best if the mother is in active labor, as assessed by the midwife, before the mother enters the water.
- If used during latent stage, pool should be disinfected and a new liner used for active labor. Pool should not be used during latent labor in cases of PROM.
- If contractions slow significantly or stop, the mother should leave the pool until labor is well reestablished.
- Maternal vital signs and fetal heart rate should be monitored as per standard of care and reevaluated after each change in water temperature.
- Since sitting in the pool can be dehydrating, the mother should be encouraged to remain hydrated, drinking water and electrolytes. The mother should aim to drink 16oz of fluid per hour.
- The mother should be encouraged to empty her bladder regularly on the toilet.
- The mother must agree to leave the pool immediately, if requested by the midwife.
- If the midwife cannot auscultate fetal heart rate, the mother should leave the pool.

- Fecal matter or other contamination should be removed from the water immediately. If the water becomes significantly contaminated, the mother should leave the pool unless birth is imminent.
- The midwife should prepare a safe birth environment outside the pool in case evacuation of the birth pool is necessary, such as towels, a blanket or mattress near the pool. Special attention should be provided to prevent slipping, and towels and/or a mop should be nearby.
- AROM should not be performed in the water, unless birth is imminent.

Management of Second Stage During Water Immersion

- Continue to observe all first stage recommendations.
- Birth should be allowed to happen spontaneously with minimal stimulation of the fetal head, including checking for a nuchal cord. Stimulation of the infant inhibits the dive reflex.
- The cord should never be clamped or cut while the head is still under water. If a tight cord delays the birth, the mother must stand or step out of the pool.
- Once the head is above the water, it must not be allowed to go back under the water.
- Infant's head should be brought to the surface immediately after birth, taking care to prevent cord avulsion. The rest of the infant's body should remain submerged to promote temperature regulation.
- If the cord is short, preventing the infant's head from comfortably sitting above the water, the mother may need to quickly vacate the pool.

Management of Third Stage During Water Immersion

- If bleeding is minimal, third stage may be managed in the pool.
- If the water becomes clouded with blood so that estimation of blood loss is not possible, the mother and infant should be quickly removed from the pool. Maternal vital signs and the mother's emotional and physical response should also be considered.

Newborn Resuscitation

- Waterborn babies may experience a slower transition in the first minutes postpartum.
- Be prepared for the possibility that it might be difficult to keep the newborn's airway open and assure a good seal when resuscitating the infant while the mother is in the pool. The ventilations must be effective in order for them to work.
- Either have a firm surface nearby or have a CPR board with heating pad, towels and saran wrap (for warmth) prepared near the pool.
- If mother can evacuate pool quickly, it may be possible to leave cord intact.
- If you have to move the infant, you will most likely have to cut the cord. Milking the cord from the introitus or base of placenta can be effective before cutting the cord.
- Follow NRP guidelines for compromised baby
- Dry the baby's face whether you do mouth to mouth or bag/mask

Sources

Cluett, E., & Burns, E. (2009). Immersion In Water In Pregnancy, Labour, And Birth. *Cochrane Database Syst Rev.*, 317-317. Retrieved April 13, 2015.

Dekker, R. (2014, July 1). Evidence on the Safety of Waterbirth.

Duckett, MD, R., & Barratt, midwife, J. (2014). Guideline for Use of Water during Labour and Birth. *Worcestershire NHS*.

- Gilbert, R., & Tookey, P. (1999). Perinatal mortality and morbidity among babies delivered in water. *British Medical Journal*, 319, 183-7. Retrieved from <http://www.bmj.com/content/319/7208/483>
- Harding, C., Munro, J., & Jokinen, M. (2012). Evidence Based Guidelines for Midwifery-Led Care in Labour: Immersion in Water for Labour and Birth. *Royal College of Midwives*.
- Ingelby RM, J. (2014). Water birth Guideline: The use of the pool during labour and delivery. *East Cheshire NHS*.
- McIntosh, J. (2011). Guideline for the Management of Water Birth in the Community. *Bridgewater Community Healthcare NHS*.
- Nutter, CNM, DNP, MSN, E., Shaw-Battista, CNM, PhD, J., & Marowitz, CNM, DNP, A. (2014). Waterbirth Fundamentals for Clinicians. *Journal of Midwifery and Women's Health*, 59(3), 350-354.
- Otigbah, C., Dhanjal, M., Harmsworth, G., & Chard, T. (2000). A retrospective comparison of water births and conventional vaginal deliveries. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 91(1), 15-20.
- Schorn, CNM, MS, M., McAllister CNM, MA, J., & Blanco MD, J. (1993). Water Immersion and the Effect on Labour. *Journal of Nurse-Midwifery*, 38(6), 336-342.
- Zanetti-Daellenbach, R., Tschudin, S., & Zhong, X. (2006). Maternal and neonatal infections and obstetrical outcome in water birth. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 134(1), 37-43.

Pool Setup and Cleaning Recommendations

Definitions

Biofilm: A thin, slimy film of bacteria that adheres to surfaces that are in regular contact with water. This can develop in any place where there is water, especially stagnant water - in pipes, overflow drains, shower heads, jets, etc.

Blackwater: Wastewater containing feces, urine and flush water from flush toilets, anal cleansing water or toilet paper.

Cleaning: The necessary first step of preparing the pools. The physical action of scrubbing with detergents and surfactants and rinsing with water removes large numbers of microorganisms and debris from surfaces. If the surface is not cleaned before disinfecting, the process is compromised.

Components: Birth pool, pump, hose, adaptors, liners

Critical Item: Any item that enters sterile tissue or the vascular system. If not sterile, there is a high possibility of infection. For example - needles and some instruments.

Decontamination: Removes pathogenic microorganisms from objects so they are safe to handle, use or discard.

Disinfection: The necessary second step of preparing the pools to be used safely. A process that eliminates many or all pathogenic microorganisms on inanimate objects.

Dwell Time: The amount of time a disinfectant must be in contact with a surface to kill the microbes. All disinfectants are tested and labeled for the specific amount of time.

Graywater: Wastewater streams generated from households or office buildings other than the wastewater from toilets. Sources of graywater include sinks, showers, baths, clothes washing machines or dishwashers.

Non-critical Item: Any medical item that comes in contact with intact skin. Sterility of these items is not critical. For example - stethoscope, blood pressure cuff, etc.

Pools: Considered part of a midwife's equipment, but they are not a medical device.

Sanitization: The process of cleaning and disinfecting.

Semi-critical Item: Any medical item that comes in contact with mucous membranes or non-intact skin. Some bacteria present on these items will not be harmful. These items should be cleaned and disinfected or discarded. For example - doppler, pool liner, pool.

Water Immersion: A depth of water which ensures the mother's belly and bottom to be submerged fully in water while she sits or kneels. Water immersion creates a buoyancy effect and produces hormonal changes which enhance labor. After approximately 30 minutes, the body releases an increase of oxytocin which lasts approximately 90 minutes.

Pools

Recommended Birth Pools and Components

- Portable pools designed and manufactured for use as birth pools for which the manufacturer has provided cleaning and disinfecting instructions. These pools should be used with liners.
- Examples include: Birth Pool in a Box, La Bassine, AquaBorn, etc.

- Single-use disposable pools such as Passages and Oasis Pools.
- Pools with removable jets and a pipeless system. Examples include: Sani-jet.
- The pool should be deep enough for water immersion.

Pools Not Recommended

- Pools/tubs with piped recirculating water systems of any type that have heaters, jets and/or overflow drains that cannot be easily cleaned. These features may harbor biofilms.
- Examples include Spa-in-a-Box, Soft Tub, garden tubs in client's home.
- Client's home baths are not recommended for two reasons 1) recirculating and heating systems in the tub are a place where biofilm develops, and 2) the bath may not be deep enough for water immersion. If the client's home bath is used for water labor or water birth, clean and disinfect the tub. A pool liner is highly recommended.

Portable Pools

Setting up

- Clean and disinfect the pool before installing the liner and after use.
- Use Environmental Protection Agency (EPA) approved tuberculocide disinfectants.
- Fill pool when midwife arrives.

Filling the Pool

- Allow the hot water to run for 3 minutes before filling the pool. This clears the hose and pipes of stagnant water and sediment.
- Do not use gray water or recycled water to fill the birth pool.
- Municipal water is generally considered safe if not left in the pool for more than 6 hours.
- Well water is generally considered safe if not left in the pool for more than 6 hours. Make sure the water has been tested within the past year. (Most private well owners know about this.)
- If you are refilling the pool, use a new liner if there is visible contamination.

Emptying the Pool

- Dispose of all debris - blood clots and feces.
- Use a submersible or external pump.
- Empty blackwater into toilet.
- Dispose of liner, debris net, etc.
- Clean and disinfect all semi-critical and non-critical items used in the birth pool, especially if they have come in contact with blackwater.

Storage

- Store according to manufacturer's instructions and where the pool will remain dry and free of soil or other environmental debris.

Non-portable Pools

Setting up

- Disinfect pool before filling.
- Use a disposable liner if you have a jetted pool.
- Run hot water for 3 minutes before filling the pool.

Emptying the Pool

- Dispose of all debris - blood clots and feces - before it can flow into the drain pipe.
- Empty the pool every 6 hours.
- If you are going to refill the pool for the same client and there is visible contamination, clean and disinfect pool.

Disinfecting the Pool

- Follow the CDC and/or manufacturers recommendations for disinfecting pool. You can also use a 1:100 mix of chlorine bleach:water. The dwell time is 5 minutes to disinfect the pool.
- Consult with Public Health if a baby or mom becomes infected with a waterborne illness.
- Clean and disinfect all semi-critical and non-critical items used in the birth pool, especially if they have come in contact with blackwater.

Quality Assurance

- The EPA recommends weekly flushing of the pipes by heating the water to 160 F and flushing for 30 minutes.
- Well water should be tested every year.
- Establish a way to monitor and log quality controls and staff performance for cleaning and disinfecting the pool.

Staff, Birth Assistant and Student Training in Facilities

Each center should train all staff midwives and anyone involved in the use of water during labor and/or birth on all facility specific procedures developed for waterbirth and retain records of employee training.

Birth Pool Documentation Logs

- Create written evidence-based practice specific procedures for cleaning and maintaining birth pools according to the recommendations in this document.

Midwife Safety and Manual Handling

- Use appropriate personal protective equipment as per CDC and OSHA recommendations.
- Any midwife or attendant with non-intact skin should cover the area. If the midwife has a draining wound that cannot be contained, she should not attend a water birth or clean the pool afterward.
- Bath mats should not be used inside the pool.
- If the area surrounding the pool becomes wet, clean and disinfect the area.
- No electrical equipment to be used in or near where it could fall into the pool.
- Consider using good body mechanics such as not leaning over the edge of the pool for long periods of time and using kneeling pads when necessary.
- Procedures should be developed for cleaning, packing for storage and lifting the pool and components to prevent back injury.

Recommended Cleaning Agents - Examples

- If a cleaning agent kills tuberculosis, it should kill all of the concerning organisms, if used according to manufacturer's instructions. Make sure cleaning agent is compatible with pool material. See resources.
- Milton. Kills HIV, Hep B and C and legionella.
- Quat or Quaternary Ammonium Salt
- Simple Green D-Pro 5 kills Legionella
- Clorox and Seventh Generation Wipes
- Store cleaning agents according to manufacturer's instructions.

Sources

Guidelines for Environmental Infection Control in Health-care Facilities: Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. CDC Healthcare.

www.cdc.gov/hicpac/pdf/guidelines/eic_in_hcf_03.pdf

Disinfection of Hot Tubs Contaminated with Legionella (CDC). www.cdc.gov/legionella/downloads/hot-tub-disinfection.pdf

Legionella and the Prevention of Legionellosis (WHO).

www.who.int/water_sanitation_health/emerging/legionella.pdf

EPA list of tuberculocide products: www.epa.gov/oppad001/list_b_tuberculocide.pdf