Alberta Health Services

GUIDELINE

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WATER IMMERSION LABOUR AND BIRTH

SCOPE
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NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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OBJECTIVES

- To support **health care providers** with a consistent, safe, and **patient**-focused approach for facilitating water immersion labour and birth for patients who request this birthing modality where feasible.
- To outline the process of water immersion labour and birth within an Alberta Health Services (AHS) **birth facility**.
- To provide guidance to health care providers to support and minimize maternal and neonatal risk.

PRINCIPLES

This guideline supports care provision and clinical decision-making for health care providers working with patients who request water immersion birth and/or labour provided that the birth facility and health care team can safely adhere to the elements and in keeping with the principles outlined in this guideline and the AHS *Water Immersion Labour and Birth* Policy.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, students, volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

ELEMENTS

1. Points of Emphasis

1.1 Prior to entering the pool/tub, and throughout the stages of labour, the health care provider shall confirm with the patient their continued comfort with the birthing plan (water immersion).

2. Prior to Arrival at an AHS Birth Facility

2.1 The **most responsible health practitioner (MRHP)** shall:

a) inform the patient of the potential risks and benefits of water immersion labour and birth (refer to Appendix A) and obtain **informed consent** in accordance with the AHS *Consent to Treatment/Procedure(s)* Policy;

b) understand and follow the AHS birth facility requirements for water immersion labour and birth;

c) consider the resources available and limitations within the birth facility in the event of an **emergency situation** and have available an alternate birth place (e.g., stretcher, bed);

d) inform the patient of what supplies they may be responsible to purchase and/or bring;

e) collaborate with the health care team to ensure that site specific processes related to the AHS *Water Immersion Labour and Birth* Policy and Guideline are followed;

f) ensure that roles and responsibilities of the health care team are clear and understood; and

g) inform the family members not to enter the pool/tub if known to be:

(i) infected with a blood borne pathogen (HIV, hepatitis B, or hepatitis C);

(ii) pathogen that can be transmitted via the fecal-oral route;

(iii) gastrointestinal illness in the preceding 48 hours; or

(iv) if they have open cuts or skin lesions including but not limited to active herpes simplex (cold sores) or varicella (chickenpox) or zoster (shingles) lesions.

3. Patient Criteria and Contraindications

3.1 Recommended criteria for patients in active labour:

a) a pregnancy at low risk of perinatal complications, of at least 37 weeks gestation;

b) singleton pregnancy;

c) cephalic presentation;

d) maternal blood borne pathogen such as hepatitis B, or HIV confirmed negative in current pregnancy; and

e) meet the criteria for intermittent auscultation as per the Society of Obstetricians and Gynecologists of Canada (SOGC) *Fundamentals of Fetal Health Surveillance Guidelines* 2020.

(i) If continuous fetal monitoring is indicated, telemetry can be used if available; check manufacturer information to ensure telemetry is waterproof.

3.2 Contraindications:

a) pre-term labour;

b) excessive vaginal bleeding;

c) maternal fever, or suspected maternal infection;

d) enteric pathogen or symptoms of infectious diarrhea/gastrointestinal illness in the preceding 48 hours;

e) active varicella, carrier of methicillin-resistant Staphylococcus aureus (MRSA), or untreated skin infection;

f) if they have open cuts or skin lesions, including but not limited to active herpes simplex (cold sores) or varicella (chickenpox) or zoster (shingles) lesions;

g) epidural;

h) any condition that would contraindicate a vaginal birth;

i) patient unable to self-ambulate into or out of the pool/tub as needed; and

j) use of narcotics within four (4) hours.

3.3 If there is a requirement for, or expectation of, physician consultation or participation by another physician specialty group, the patient is required to leave the pool/tub.

3.4 The MRHP shall use clinical judgement to determine appropriateness of water immersion for labour and birth for all patients, especially in the situations outlined in Section 3.5 below.

3.5 There are situations where there is a lack of evidence regarding risk or benefit, including the following:

a) membranes ruptured more than 24 hours ago;

(i) When membranes have ruptured, the patient should not enter the pool/tub until in active labour.

b) history of hepatitis C;

(i) Consider patients at risk of hepatitis C, (e.g., migrated from high risk endemic countries or history of injection drug use).

c) use of oxytocin for induction or augmentation of labour; and

d) prior cervical ripening by prostaglandin or balloon devices for induction of labour.

(i) Remove the balloon if it has not fallen out prior to immersion in water.

4. Preparation and Pool/Tub Set-Up

4.1 Patient and health care provider safety shall be a priority during pool/tub set up, use, and disassembly. To minimize risks, the following shall be followed along with birth facility **environmental safeguards**:

a) infection prevention and control (IPC) routine practices including hand hygiene shall be followed throughout the water immersion labour and/or birth to prevent cross contamination or infection;

b) personal protective equipment (PPE) shall be available, and shall be used with appropriate donning and doffing;

c) reusable equipment shall be cleaned and disinfected between patients following manufacturer's instructions for both equipment and disinfectant; and

d) aseptic procedures shall not be performed under water (e.g., injections).

4.2 For safety, consider the following:

a) location and physical space for the pool/tub, including plans to respond to leaks or spills;

b) the pool/tub shall not obstruct any doorways or access to the patient. There shall be a minimum of three (3) feet of space on one (1) side of the pool to access the patient at all times;

c) the pool/tub shall not block access to the neonatal resuscitation area; and

d) safe placement related to electrical outlets and any cords to minimize slip, trip, fall, or electrocution hazards.

4.3 Setup varies by type of pool/tub and components.

a) Permanent tubs (installed) should be designed and manufactured for use as a birth tub, with a pipe-less (non-jetted tubs) system.

(i) If a permanent tub is used, follow manufacturer's cleaning and disinfection instructions.

(ii) Overflow drains are not recommended due to **biofilm** and risk of infection. Minimize risk by keeping water level below overflow drain.

(iii) Do not use tubs that have water recirculation components such as heaters or jets.

b) Portable Multiple-Use Pool (professional grade)

(i) A liner shall be used with this type of pool.

c) Portable Single-Use Pools and Components

(i) Dispose of all single-use components (e.g., pool liners, debris net, fill hose, drain hose) after use on the individual patient. For more information refer to the AHS *Critical and Semi-Critical Single-Use Medical Devices* Policy.

4.4 If using a portable birth pool, the associated components are required:

a) tap adapter;

b) drain sump pump with large bore drain hose;

c) electric air;

d) new clean hoses for filling the birth pool;

e) separate hose for draining (this hose may be reused for draining but shall be dedicated for this use, and shall be cleaned and disinfected between uses); and

f) disposable (single-use) liners if using a portable multiple (commercial grade) birth pool.

4.5 The pool/tub shall be filled with clean potable tap water as close as possible to the time of use (less than six [6] hours). Bacteria such as Legionella and Pseudomonas can grow in water sitting for extended periods of time.

4.6 Supplies:

a) waterproof doppler;

b) PPE for health care providers assisting with a water birth includes clean gloves long enough to prevent exposure to potentially contaminated water, waterproof gown and facial/eye protection (goggles and mask, or a face shield);

c) flashlight (consider having spare batteries on hand);

d) clean plastic bucket;

e) knee cushions, low stools / birthing balls for health care providers and support person(s);

f) extra towels for water spills;

g) sieve or strainer;

h) approved, calibrated, and maintained thermometer;

i) shatterproof hand-held mirror; and

j) equipment to support removing a patient from a pool/tub in an emergency (e.g., birthing pool transfer sling).

4.7 Follow manufacturer's instructions for proper portable birth pool/tub set-up, use, storage and maintenance.

4.8 All reusable equipment shall be cleaned and disinfected between patients according to manufacturer's instructions and in accordance with the AHS *Management of Loaned and Reusable Medical Devices* Policy.

5. Patient Set-Up

5.1 Fill the pool/tub so the level of the water is over the patient's abdomen completely up to chest level.

a) Ensure the level of water is deep enough to provide comfort for the patient.

(i) Complete submersion of the patient's pelvis during crowning and delivery of the infant is required.

(ii) During or after delivery of the infant's head, if the patient comes out of the water they must remain out of the water.

b) Ensure level of water is not too high as to prevent newborn from resting on the patient's chest safely.

5.2 The patient when entering/exiting the pool/tub should:

a) enter the pool/tub when they feel the need for comfort; and

b) be able to self-ambulate in and out of the pool/tub.

5.3 The patient shall never be left alone in the pool/tub; a birth partner, support person(s), or health care provider should be in the room with the patient while they are in the pool/tub.

6. Patient and Water Temperature Management

6.1 The water temperature should be comfortable for the patient and maintained within a comfortable range throughout labour. The temperature of the water is adjusted for maternal temperature and comfort.

a) Do not keep the water temperature so hot as to elevate patient temperature over 37.5˚C.

b) If the maternal temperature is higher than 37.5˚C, discontinue use of the pool/tub until the patient's temperature returns to normal. If there is a concern of infection, the patient should not return to the tub.

c) The safe water temperature range for assisted bathing for an adult is between 38˚C to 43˚C (refer to the AHS *Safe Bathing Temperatures* Policy).

6.2 The water temperature in the pool/tub can be adjusted by removing a few buckets of water from the pool/tub and replacing with warmer water (less than 10 litres of water should be put in the bucket at a time to keep it at a safe, manageable weight for the health care provider).

6.3 Baseline maternal vital signs (including temperature) should be checked on entry to the pool/tub, and more often as required as per local processes and clinical judgement.

6.4 Maternal temperature should be monitored according to local processes and clinical judgement.

7. Management of the First (1st) Stage of Labour

7.1 Care and Management:

a) Provide care and monitoring as per routine labour management, being aware of the importance of patient hydration during water immersion.

b) Fetal heart rate, characteristics and classifications shall be done in accordance with the Society of Obstetricians and Gynecologists of Canada (SOGC) *Canadian Fundamentals of Fetal Health Surveillance*.

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c) A waterproof fetal doppler or telemetry is to be used.

d) If there are any concerns about fetal or maternal well-being, the patient shall be advised to leave the pool/tub so a more extensive assessment can be done with necessary action and evaluation.

(i) For example: fetal tachycardia, maternal hyperthermia or dehydration.

e) Keep water clean by removing stool and blood clots from the tub immediately with a single-use sieve or debris net.

f) Dispose of contaminants following routine practices.

g) If contaminants cannot be easily removed, drain, clean and refill the pool or tub as soon as possible.

7.2 Some patients may choose to leave the pool/tub for the birth.

8. Management of the Second (2nd) Stage of Labour:

8.1 Care and Management:

a) Provide care and monitoring as per routine labour management outlined in facility protocols, and ensure the water temperature is warm enough to prevent hypothermia in the newborn.

(i) The newborn's temperature should be kept between 36.3˚C - 37.2˚C, when measured at the axilla.

(ii) The safe water temperature range for assisted bathing of infants is warm to the touch of an adult's elbow or the inner aspect of the bare wrist (refer to the AHS *Safe Bathing Temperatures* Policy).

b) Fetal heart rate, characteristics and classifications shall be done in accordance with the Society of Obstetricians and Gynecologists of Canada (SOGC) *Canadian Fundamentals of Fetal Health Surveillance*.

c) A waterproof fetal doppler or telemetry is to be used.

d) If there are any concerns with fetal or maternal well-being, the patient shall be advised to leave the pool/tub so that a more extensive assessment can be done with necessary action and evaluation.

8.2 Delivery:

a) The infant should be born completely underwater and then the newborn is immediately and gently brought to the surface.

(i) To prevent the umbilical cord from snapping, be aware of cord length when gently lifting the newborn up and out of the water. Nuchal cord should be unwrapped under the water prior to bringing the newborn to the surface.

b) The cord shall never be clamped and/or cut whilst the newborn is still under the water.

c) Health care providers shall follow the AHS *Umbilical Cord Clamping* Guideline.

d) After delivery of the fetal head, if the patient raises themselves out of the water and exposes the infant to the air, the patient shall be advised to remain out of the water to avoid the risk of premature gasping of the newborn under water.

e) Following the birth, consider resting the newborn skin-to-skin on the patient's chest ensuring the newborn's head is above the level of the water, with the body still in the water to prevent hypothermia.

f) In emergency situations, call for help, assist or remove the patient or newborn from the pool/tub immediately using the emergency response plan developed by the birth facility.

9. Management of the Third (3rd) Stage of Labour:

9.1 The third (3rd) stage is completed according to the MHRP's assessment of risk and the patient's informed choice (i.e., physiological or active management).

a) If completing the third (3rd) stage in water, emergency response plans need to include consideration of the patient's weight and safe removal from the pool/tub.

9.2 If third (3rd) stage is completed in water, the patient should be assisted out of the tub if there is evidence of excessive bleeding to facilitate assessment of vital signs and blood loss and treatment.

9.3 Maternal assessments shall be completed as per standard practices and site processes.

10. Care of the Newborn:

10.1 Newborn care and assessments shall be followed as per practice setting process and are aligned with the Neonatal Resuscitation Program (NRP).

10.2 To prevent neonatal hypothermia while the patient is in the pool/tub with the newborn, keep the newborn's body under water with head dried and covered and ensure the water temperature is warm enough.

11. Documentation

11.1 All assessments, reassessments, interventions and patient responses to interventions shall be documented on the patient's **health record** (maternal and newborn) as well as on the Delivery Record as per practice setting.

11.2 Documentation shall also include:

a) the times that the patient enters and exits the pool/tub including the reason(s) why;

b) if the infant was born under water; and

c) if the placenta was delivered under water.

12. Safety

12.1 Mitigating Workplace Hazards:

a) There shall be an immediate response to clean up leaks, spills or punctures of the pool/tub.

b) Sharp object use is above water (e.g., scissors and needles for injections).

c) Use good ergonomics for safe positioning, reaching, and monitoring of Patient to mitigate risk for worker musculoskeletal injury (refer to the AHS *It's Your Move Safe Client Handling* resource).

d) Have available resources to remove the patient from the pool/tub if they are unable to do so themselves (e.g., ceiling or mobile patient lifts positioned over the tub, slings, additional workers, etc.).

(i) Consider the speed of response that may be required, and associated need for close proximity of these resources.

12.2 Emergency Situations:

a) In emergency situations, the MRHP shall:

(i) initiate a call for help to assist or remove patient and newborn from pool/tub immediately using the emergency response plan developed by the birth facility;

(ii) use clinical judgement to respond appropriately to problems that may occur during any stage of labour; and

(iii) document any actions taken.

b) For neonatal resuscitation, the MRHP shall:

(i) call for help;

(ii) clamp and cut the umbilical cord; and

(iii) transport the newborn to the resuscitation area.

12.3 Emergency Response Plan:

a) Any birth facility where water immersion labour and birth is provided should have an established emergency response plan. This plan should include consideration of:

(i) equipment needed to assist in removing a patient from a pool/tub (e.g., birth pool transfer sling); and

(ii) the people involved in responding, including:

- the number of people required to assist/use equipment to remove a patient from the pool/tub; and
- designated health care providers to support both the patient and the newborn while a crisis is being managed.

13. Quality Improvement

13.1 Auditing mechanisms should be considered by any birth facility where water immersion labour and birth is provided. Documentation captured on the birth record and health record may facilitate this.

13.2 Data collected should focus on maternal well-being and the condition of the newborn at birth, including the usual birth outcomes, use of analgesia, incidence of cord rupture, reasons for and rates of neonatal admission to NICU, and reasons for and rates of readmission or presentation to an emergency department.

DEFINITIONS

Birth facility means the Alberta Health Services hospital where an infant is born.

Biofilm means a thin, slimy film of bacteria that adheres to surfaces that is 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.

Emergency situation means a circumstance which requires immediate health care that is necessary to preserve life, to prevent serious physical or mental harm, or to alleviate severe pain.

Environmental safeguards means the presence, absence or structure of physical features to prevent patients, visitors or staff from being harmed, engaging in self-injurious behavior, and/or harming others.

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Health care provider means any person who provides goods or services to a patient, inclusive of health care professionals, staff, students, volunteers and other persons acting on behalf of or in conjunction with Alberta Health Services.

Health record means the collection of all records documenting individually identifying health information in relation to a single person.

Informed consent means the patient's agreement (or alternate decision-maker) to undergo a treatment/procedure after being provided, in a manner the patient can understand, with the relevant information about the nature of the treatment/procedure(s), its benefits, potential risks and alternatives, and the potential consequences of refusal.

Most responsible health practitioner (MRHP) means the health practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized by Alberta Health Services to perform the duties required to fulfill the delivery of such a treatment/procedure(s) within the scope of their practice.

Patient means all persons, inclusive of residents and clients, who receive or have requested health care or services from Alberta Health Services and its health care providers. Patient also means, where applicable:

a) a co-decision-maker with the person; or
b) an alternate decision-maker on behalf of the person.

REFERENCES

- Appendix A: *Health Information - Water Immersion during Labour and Birth: Deciding What's Right for You and Your Baby*
- Alberta Health Services Governance Documents:
  - *Consent to Treatment/Procedure(s)* Policy (#PRR-01)
  - *Critical and Semi-Critical Single-Use Medical Devices* Policy (#PS-07)
  - *Management of Loaned and Reusable* Medical *Devices* Policy (#PS-91)
  - *Safe Bathing Temperatures* Policy (#PS-47)
  - *Umbilical Cord Clamping* Guideline (#2-N-4)
  - *Water Immersion Labour and Birth* Policy (#HCS-279)
- Alberta Health Services Resources:
  - *eSIM: Unconscious Patient from Birthing Pool*
  - Infection Prevention and Control Resources, Manuals, Guidelines and Routine Practices
  - *It's Your Move Safe Client Handling*
- Non-Alberta Health Services Documents:
  - *Fundamentals of Fetal Health Surveillance Guidelines 2020* (Society of Obstetricians and Gynecologists of Canada [SOGC])
  - *Canadian Fundamentals of Fetal Health Surveillance* SOGC

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APPENDIX A

Health Information - Water Immersion during Labour and Birth: Deciding What's Right for You and Your Baby

This document has been created to support an informed choice discussion between health care providers and their Patients/Clients.

Your health care provider and AHS recognize that child bearing families are requesting water immersion as a (non-pharmacological) pain relieving strategy during labour and/or birth. If you are considering this option, this handout may help answer some questions so you can make an informed choice when you discuss your options with your Physician or Midwife.

Keep in mind, not all birth facilities have the necessary equipment to support labouring or birthing in a pool/tub. Your health care provider will know if your intended birth location can facilitate water immersion. Additionally, your Physician or Midwife will also confirm if they are able to support labouring and/or birthing in water.

Water immersion during labour is appropriate for many pregnant people. Discuss with your health care provider if water immersion during labour is an option for you. This document focuses on water immersion during the birth of a baby.

What is Water Immersion Birth?

During a water birth, the pregnant person remains in a tub or pool of warm water during the pushing phase and actual birth of the baby. Your baby will be completely born under the water. The placenta can be safely delivered in the pool, or you may move to a bed to deliver the placenta.

Is water immersion for birth right for you?

If you are considering water immersion for birth, there are some criteria that you need to consider:

- You've had an uncomplicated pregnancy, with one baby, and are expecting an uncomplicated labour and birth.
- You have reviewed the information about water birth and its potential risks and benefits with your health care provider.
- You must be able to get in and out of the pool/tub without assistance from health care providers.
- You must have someone to stay with you at all times while you are labouring in the pool.
- Water immersion may limit your options for other forms of pain management while in the pool/tub (e.g., TENS, opioids, epidural).
- You do not have active infections, such as hepatitis B, HIV.
- Your baby does not have risk factors which require the neonatal resuscitation team to be present for the birth.

APPENDIX A (continued)

You will be advised not to have a water birth if you do not meet the criteria listed above. Your suitability to have a water birth is determined by you and your baby's health in consultation with your health care provider, there may be additional criteria to consider based on your pregnancy. Ask your physician or midwife if any of the above apply to you.

Potential benefits and risks of Water Immersion Labour and Birth

The following potential benefits and risks have been outlined by the available research on water immersion labour and water birth.

Potential Benefits

Some research [i, ii] data suggests water immersion labour and/or birth may provide certain benefits for you and your baby.

- It may be very effective for managing pain and decreases the need for pain medications.
- It may lower blood pressure.
- The warm water may help to relax, soothe and comfort you.
- The support of the water means you can try different positions and move more freely.
- It may shorten your labour.
- It may reduce your risk of perineal trauma (e.g. tearing, episiotomy).
- Pregnant people have reported they feel more relaxed, involved in decision-making, and more in control when using water for labour and birth.

Potential Risks

The following are potential risks associated with labouring or birthing in water. It is possible there may be other risks that yet are unknown.

- When someone enters the pool in early labour, contractions may slow down or stop.
- After birth, your baby will be brought up to the surface; if the baby goes back under water, they can inhale water and serious injury or drowning can occur.
- There is a risk of cord injury if the umbilical cord is very short, you may need to lift yourself out of the water to allow your baby to reach the surface of the water to take their first breath.
- Your baby's body temperature may get too cool if their whole body is out of the water for too long.
- It is difficult to estimate blood loss in water.
- There have been some case reports of serious infection in babies, where the water supply has not been properly managed. Within AHS, there are processes in place to ensure safety of the water supply.
- If there is an emergency, being in the water may complicate or delay needed emergency maneuvers or resuscitation. Each AHS site where water immersion is offered has response plans in the event of an emergency, all members of the health care team are aware of these plans.
- If concerns arise for you or your baby, or there is a need for another specialty group to be involved in your care, such as anesthesia, you will need to leave the pool when advised by your health care provider.

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APPENDIX A (continued)

Will the birth facility supply all the equipment for my water birth?

- Ensure you talk with your health care provider about any equipment you might be responsible for.

How do I decide what to do?

- You and your partner should work with your health care provider to make an informed decision before your due date.

Can I change my mind about having a water birth?

- Yes. Even if you've made a decision with your health care provider and consented to a water immersion birth, if you decide you don't want to get into the pool then you don't have to.
- If you get in the birth pool and don't like it, you can get out.
- Some of the information in this handout has been adapted from the High River Low Risk Maternity Clinic Water Birth Information Hand out. Revised February 12, 2019.

[i] Jacoby, S., Becker, G., Crawford, S., Wilson, RD. Water Birth Maternal and Neonatal Outcomes among Midwifery Clients in Alberta, Canada, from 2014 to 2017: A Retrospective Study. Journal of Obstetrics and Gynaecology Canada 2019, Jun; 41 (6): 805-812 doi: 10.1016/j.jogc.2018.12.014

[ii] Cluett ER, Burns E, Cuthbert A. Immersion in water during labour and birth. Cochrane Database of Systematic Reviews 2018, Issue 5. Art. No.: CD000111. DOI: 10.1002/14651858.CD000111.pub4.