

## **Appendix 1. Waterbirth Clinical Eligibility and Policies of Study Hospitals\***

*\*Portions of this text (reference 1) were reprinted with permission from Sidebottom AC, Vacquier M, Simon K, Fontaine P, Dahlgren-Roemmich D, Hyer B, et al. Who gives birth in the water? a retrospective cohort study of intended versus completed waterbirths. J Midwifery Womens Health 2019 Jul;64(4):403–9.*

The clinical waterbirth policies at both health systems exclude women from waterbirth eligibility if they generally do not meet low-risk criteria (Table 1). Additionally, the policies indicate exclusions may be made based on other conditions at the discretion of the physician or certified nurse midwife or any other condition requiring the presence of additional health care professionals for the neonate and that women must be able to get in and out of the tub unassisted. The clinical waterbirth policy requires that women provide consent antenatally and understand and agree to the eligibility guidelines.

Women arriving on the labor and delivery unit are screened prior to starting water immersion for waterbirth at both health systems. Screening includes confirmation that a signed consent for waterbirth is on file, the woman is in active labor, there is a singleton fetus in cephalic presentation, maternal vital signs are normal, and a 20 to 30-minute electronic fetal monitoring (EFM) tracing is category 1. If any significant decelerations or a persistent category II or III EFM tracing occurs, then women cannot enter the tub. Additionally, the waterbirth policies at these sites do not allow others to enter the tub as they have not been screened for infections.<sup>1</sup>

### **Training and credentialing procedures<sup>1</sup>**

The training and credentialing process for waterbirths at Allina was modified following the 2014 American College of Obstetricians and Gynecologists (ACOG) and American Academy of Pediatrics (AAP) statement<sup>2</sup>, and all physicians and certified nurse midwives waterbirths were required to be credentialed under a new training process. Additionally, all nurses from labor and delivery underwent the same training process. Participants in the training and credentialing process first complete an online module requiring them to read articles, take a post-test, and review policies for both hydrotherapy and intermittent fetal auscultation. Participants then engage in a hands-on simulation-based training following the online component that includes the use of a model to simulate several potential emergencies (i.e., cord prolapse, cord avulsion, shoulder dystocia, maternal loss of consciousness, emergent evacuation of the woman before and after giving birth). Following the simulation, certified nurse midwives, physicians, and nurses are then trained on proper clinical documentation in the EHR and Allina's waterbirth policies. A quality improvement process includes reviews of attempted or

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completed waterbirth by clinical experts who oversee the training process (authors K.S., D.D.-R.). Health care professionals are required to repeat the credentialing process if a breach of policy or a safety practice concern is identified, or if documentation guidelines are not followed.<sup>1</sup>

At HealthPartners, the training and credentialing process for waterbirths along with patient education in the form of the waterbirth agreement were developed in 2010 with implementation of waterbirth in September of that year. All health care professionals engaging in waterbirth were required to be trained, mentored, and credentialed. The training and credentialing process includes an online module requiring participants to read articles on waterbirth, review policies for waterbirth and intermittent FHR auscultation, and take a post-test. The policies and credentialing process for all HealthPartners hospitals were standardized following the ACOG and AAP position statement in 2014.<sup>2</sup> The Patient Waterbirth Agreement form was also modified following the release of the ACOG and AAP position statement. Certified nurse midwives, physicians, and nurses are trained on proper clinical documentation in the EHR. The Medical Director (author B.H.) or the Nursing Director of the Birth Center at Regions Hospital reviewed all records of hydrotherapy in the second stage with intent to complete waterbirth for quality purposes from September 2010 until January 2017. A HealthPartners Waterbirth Research Group (authors P.F., J.J.) reviewed every record of patients attempting waterbirth from all 3 HealthPartners hospitals that contributed data during the study period for integrity of data and quality purposes.<sup>1</sup>

Clinical procedural example details from the Allina Health guidelines:

The below are selected components of the Allina health waterbirth guidelines which were developed with the assistance and endorsement of an organizational quality improvement group.

1. The certified nurse midwife or physician will ensure women who desire water birth meet the criteria and understand the circumstances in which she would need to leave the tub. This conversation with the patient should be documented in EHR ensure women they have signed the water birth consent and agreement form.
2. The patient may not be left unattended in the tub from transition onward. A labor RN, certified nurse midwife, or physician should be in attendance at all times once the patient reaches transition. Certified nurse midwife or physician should be immediately available at all times during second stage of labor for a primipara, and upon entry to the tub for multiparous patients.
3. Health care professionals are required to use appropriate personal protective equipment consistent with the Infection Control Policy (maternal and newborn), which includes shoulder length gloves, masks in combination with eye protection devices, and appropriate protective clothing. Support persons at delivery may wear street clothes.

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4. The tub should be filled according to manufactures instructions, this includes only using tap water and allowing water to run for at least five minutes prior to filling to clear any bacteria. Tub water must not recirculate. The tub is filled to level of breasts (perineum must be submerged for birth). Water temperature should be maintained between 35-37.5 Celsius and should not exceed 38 degrees Celsius. Water temperature should be monitored and documented (every hour in the first stage of labor and every 30 minutes in the second stage). If the mother feels too warm or has an elevated temperature she should leave the water until she has cooled down. Cool water may be added to the tub. If there is any debris in the tub a net should be used to remove it. Upon completion of a waterbirth the tub should be cleaned and disinfected according to unit guidelines or if portable tub is used according to manufacturer guidelines.

5. Electrical safety of the area shall be maintained.

6. As a safety measure patient lift equipment and supplies will be secured in the event that patient needs to be removed from the tub quickly.

7. Assess maternal vital signs every hour (and PRN) and temperature every two hours. The mother should leave the tub if heart rate >120 for 30 min-1 hour.

8. Each time the patient exits the tub or re-enters it, this should be documented.

9. FHR will be monitored with water safe doptone or telemetry monitoring using the low risk guidelines for labor. Monitoring will occur every 60 minutes during latent labor, every 30 minutes during active labor (first stage), and every 15 minutes during second stage of labor. FHR will be assessed before, during and after a contraction and simultaneously while assessing maternal radial pulse, as well as after rupture of membranes. If FHR decreases are auscultated in relationship to contractions, it may be appropriate to change maternal position and reassess with the next contraction or two to confirm the finding. EFM is initiated to clarify the FHR assessment when any concern regarding interruption in fetal oxygenation exists with auscultation. Water safe telemetry fetal monitoring may be used. If Category II or III fetal tracings are present with EFM, the patient must leave the tub. Active labor must be established prior to entering the tub for delivery. Patient may be in any position comfortable for her, change positions often. If after 2 hours the patient has not delivered, get her out of the tub and try other methods. Encourage physiological non-directed pushing when she has the urge. Avoid unnecessary touching of the fetal head during birth to minimize tactile stimulation of the baby. As directed, patient may control the emerging head with her hands. The baby should be born completely underwater. The nurse should help with guiding the baby's body after birth to ensure there is no contact with air until baby is brought to the surface. This should occur within 15 seconds after the infant's body is delivered and placed skin to skin with mother. The cord should not be cut and clamped under water. The baby's head should never be re-submerged. If nuchal cord is present, attempts should be made at reduction prior to birth of shoulders to somersault baby through the cord.

Delivery of the placenta and repairs shall occur in the birthing bed. The infant should be given to another caretaker during this time. The mother should not carry the baby from the tub to the bed.

Policy directed response to potential complications occurring in the tub:

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1. Short Cord at birth: If present, keep the baby close to lower abdominal area so that undue traction does not avulse the cord, making sure the baby does not re-submerge.
2. Shoulder Dystocia: If delivery of the shoulders is delayed assist the mother to exit the tub being cautious that movement may dislodge the shoulders. Shoulder dystocia maneuvers should only be attempted outside of the tub.
3. Evacuation of collapsed woman in tub: Get additional help. Dedicate one staff member to maintain airway. Keep water in the tub, move the patient with appropriate Safe Patient Moving guidelines and equipment and lift her on to the bed. Call Rapid Response or Code Blue as needed.
4. Avulsed Umbilical Cord: Check for tension of cord upon delivery to prevent this occurrence. Upon discovery of snapped cord, clamp immediately at baby and mother's ends and transfer baby to warmer for any necessary resuscitation.

## References

1. Sidebottom AC, Vacquier M, Simon K, Fontaine P, Dahlgren-Roemmich D, Hyer B, et al. Who gives birth in the water? a retrospective cohort study of intended versus completed waterbirths. *J Midwifery Womens Health* 2019;64:403–9.
2. American College of Obstetricians and Gynecologists Committee on Obstetric Practice. Committee opinion no. 594: immersion in water during labor and delivery. *Obstetrics and gynecology*. 2014;123:912-5.

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