



Keeping Waterbirth Safe During COVID-19

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All the research shows that water reduces the rate of infection in all three participants – mother, baby and provider - and in some cases makes contaminants non-viable. This was the answer I gave to the first person, a hospital midwife from Italy, who asked about any restrictions for using water for labor and birth during the COVID-19 outbreak. She sent a message on March 20th and I recommended that they continue with their established hospital waterbirth practice and where and when necessary, use full personal protection equipment.

The second and third request came from a northern California home birth midwife and a Washington State midwife immediately after that. I wrote to some of my international midwifery friends and conducted a short survey of practices from the UK, UAE, Iran, Turkey, Mexico and China, as well as the US.

Iran and United Arab Emirates suspended water use in both labor and birth. Tubs are closed indefinitely. Mexico, Turkey and China have not stopped the use of water in all places. The UK has trepidations, and published joint RCOG/RCM/RCPCH COVID-19 recommendations on 21 March 2020, stating, “The use of birthing pools in hospital should be avoided in suspected or confirmed cases, given evidence of transmission in faeces and the inability to use adequate protection equipment for healthcare staff during water birth.”¹

When I asked a UK midwife currently working on a busy unit why they would eliminate all hydrotherapy, she said, “This is a gut feeling of theoretical risk.”

Some of the key issues that she conveyed after speaking with her colleagues were:

1. No routine testing is available for pregnant women.
2. Only persons who meet the criteria of ill health are being tested for COVID-19.
3. Positive women who are admitted in labor are put in isolation with full PPE used by anyone entering the room.
4. Midwives are worried about how the virus is transmitted and possibly infecting themselves or bringing it home to their family members.
5. Staffing levels - in the UK a woman is never left alone when in the pool and they might not have enough people to adequately clean a pool
6. Water splashing on uniforms may be an issue.
7. Personal protective equipment supplies are either low or not available.
8. Gloves alone are not adequate to protect anyone during waterbirth.



In conclusion, she wrote, “Due to uncertainties, midwives do not want to increase potential risks in this unprecedented time.”

I understand all her concerns and especially when information is sparse or conflicting. There have been protocols and selection criteria in place for labor and birth in water for the past 30 years. Modification of those protocols is what is now needed.

Standard protocols and exclusion criteria

There are accepted water assisted labor and birth protocols and exclusion criteria throughout the world. Presenting in labor with a fever (38C or 100.4F x 4 hours), excludes a candidate from getting into a birth pool. You don’t want to put a feverish person into a hot tub. A second recognized exclusion is any untreated infection, whether blood born, skin or upper respiratory. The key word is untreated. In the case of COVID-19, there is no standard accepted treatment for the infection. Knowing whether a person is infected is the key to creating policy on the use of hydrotherapy in labor. Many places are assuming that everyone is suspected positive and put into place precautions that would limit the contamination of healthcare providers. Women in Shanghai, China had a 10-30% false negative when they first started testing. That rate dropped with serology testing, however the window for results is seven days and mean incubation is 6.4 days.²

Infections in the water – looking at CDC and Meta-analyses

The current Centers for Disease Control and Prevention updated Coronavirus information website states the following:

“The COVID-19 virus has not been detected in drinking water. Conventional water treatment methods that use filtration and disinfection, such as those in most municipal drinking water systems, should remove or inactivate the virus that causes COVID-19.”

If you are filling the birth pool from a city or municipal water source, the water will have some form of chlorination in it, rendering any virus from the mother or contained in the water, inactive. Start every birth with clean equipment and clean water. You can also feel safe about adding 30 milliliters (one ounce = 2 tablespoons) of household bleach to any birthing pool allowing it to sit for one hour in a well-ventilated area. The bleach will decrease any viral loads



and impede the growth of any bacteria and evaporate within that hour. Make sure that anything that comes into contact with water is either disposable or washable. Keep good practices, such as restricting who can get into the water with the mother. At this time, it would be better if she were in the pool by herself receiving support from the outside.

Additionally, CDC states, “There is no evidence that COVID-19 can be spread to humans through the use of pools and hot tubs. Proper operation, maintenance, and disinfection (e.g., with chlorine and bromine) of pools and hot tubs should remove or inactivate the virus that causes COVID-19.”³ Good hygiene with proper cleaning – as during any time of using birth pools, not just now – will increase the safety of water immersion. The CDC has maintained this position with the use of pools in hospitals for labor for a very long time. I contacted them as early as 2000, asking for assistance in writing policies. In 2009, they even went so far as to deem the viruses that make up HIV and AIDS non-transmittable through the water.⁴

“The risk of transmission of COVID-19 from the feces of an infected person is also unknown. However, the risk is expected to be low based on data from previous outbreaks of related coronaviruses, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). There have been no reports of fecal-oral transmission of COVID-19 to date.”

Remember, the solution to pollution is dilution. There is every reason to continue birthing safely in water, especially for infection free, low risk populations. If a mother were to lose stool during a birth, it becomes diluted, subjected to the chlorine in the water and is quickly removed by the provider. Birth on the bed carries much more risk of transmission than birth in water.

The literature on infections in infants is very convincing, as well. In the past four years there have been three meta-analyses of neonatal outcomes in waterbirth published. Each one looked at NICU admissions and post-partum infection rates. It is important to look at these in respect to feeling safe about the infectious or non-infectious nature of birth in water.

Vanderlaan and Hall, et al which found: “no increased odds of poor neonatal outcomes with water birth compared to conventional delivery practice, the analysis revealed this finding was stable for many outcomes (including neonatal infection rates) and is unlikely to change with future research.water immersion during second stage may be considered a safe non-pharmacologic method for managing labor pain. Water immersion during second stage should be considered among the tools hospitals use to promote physiologic birth..”⁵

Davis and Davies looked at Neonatal sepsis/infection, including fever and other infection markers, as defined within any studies, within seven days of birth along with nine other parameters. It was concluded that, “There is no evidence to suggest that the practice of waterbirth in a low risk population is harmful to the neonate.”⁶



Taylor and Sutcliffe sorted through the available evidence and created the final meta-analysis concluding, “No significant difference in neonatal mortality, neonatal intensive care unit/special care baby unit admission rate, Apgar scores, umbilical cord gases or infection rates was found between babies delivered into water and on land.”⁷

The significance of these meta-analyses contributes to our confidence when offering birth in water to a screened, at term population with few complexities.

Two more studies to examine are both done by Zanetti-Dallenbach, R., et al, in Switzerland, looking at neonatal colonization rates with mothers who were tested with positive Group Beta Streptococcus.^{8 9} His first paper was the supposition that the water would have a dilution or “wash-out” effect and his next paper proved that the colonization rate was less on the neonate, with a trend toward less colonization in the water when compared to a comparable group of positive GBS mothers who gave birth on the bed. There was a dilution factor to take into consideration.

Conclusion and recommendations

For those women whom you know to not be infectious, have exposure, or incubating, the policy will be no different from the standard protocol and selection criteria for use of warm water immersion in labor and birth. Warm water immersion for comfort and relaxation during labor and birth has four decades of history in clinical and home birth settings throughout the world.¹⁰ Midwifery professional bodies and some medical organizations all advocate offering the use of a birth pool to laboring women with uncomplicated pregnancies at term.^{11 12 13} Having access to hydrotherapy in labor is an important and vital comfort management standard practice. As maternity resources are stretched during this difficult time, the economy of using warm water immersion over epidurals or nitrous oxide, is extremely valuable. Research indicates that between 30 and 79 percent of women use water immersion during their labor, with a large percentage of women who labor in a pool, staying there to give birth.^{14 15 16}

Creating a ban on the use of birthing pools needs to be based on scientific evidence and not a “feeling of theoretical risk” or presumption of fear.

This is an extremely perplexing time in all healthcare areas with many variabilities and changes on a daily and sometimes hourly basis. Do what you know, what you trust, what you need to do to guarantee your safety.

The deciding factors are true risk versus available resources.

1. If you have a way of testing your population or if you have women who are presenting at term with normal physiology with acceptable variations, no signs of COVID-19 infection and no history of exposure, you may feel free to continue using your birth pools, provided that they are cleaned according to standard protocols between uses. Try to keep a hands-off approach to care of the laboring person. Exclude family members from entering the water with the mother. Consider adding 30 ml – 2 tablespoons of household bleach to birth pools if you have questions about water contamination. Continue offering the care with which you are most comfortable.



2. If your facility cannot make available personal protective equipment for all maternity care providers for positive or presumptive positive birthing persons, don't offer waterbirth. If that is the policy that is enacted in order to deal with the situation, we can all accept that.

However, based on the available evidence the use of hydrotherapy should not be eliminated where possible and birth in water is probably safer for all concerned. The first contraindication to using water is fear. Using water may be another layer of complexity that may push the provider to their limit. Staffing and the lack of PPE may be your deciding factors.

3. Hopefully, some of our researchers will keep track of the rate of infections and water use during the COVID-19 era. Knowing how valuable this form of comfort and relaxation is for labor and birth, we must keep it available for all who need it and we must adhere to policies which keep it safe.

Review committee: Shayne Bergner-Israel; Dianne Garland-UK; Ann Ljungblom-Sweden; Beti Flores-Mexico; Lisa Marie Oxenham-California; Kate Prendergast-New York; Nancy Wainer-Massachusetts; Lindsey Meehleis-California; Fadwah Halaby-Florida; Kimberly Juroviesky-Florida

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¹ RCOG 21 March 2020: Coronavirus (COVID-19) Infection in Pregnancy accessed March 25, 2020

² Online information session March 25, 2020 Dr. WenHong Zhang, Chair of the Society of Infectious Diseases of China Medical Association.

³ "Municipal Water and COVID-19." Centers for Disease Control and Prevention, Centers for Disease Control and Prevention, 10 Mar 2020, www.cdc.gov/coronavirus/2019-ncov/php/water.html. Accessed 25 March 2020

⁴ Personal correspondence, Waterbirth International with CDC officials, September 2009.

⁵ Vanderlaan J, Hall PJ, Lewitt M. Neonatal outcomes with water birth: A systematic review and meta-analysis. *Midwifery*. 2018;59:27-38.

⁶ Davies R, Davis D, Pearce M, Wong N. The effect of waterbirth on neonatal mortality and morbidity: a systematic review and meta-analysis. *JBI Database System Rev Implement Rep*. 2015;13(10):180-231.

⁷ Taylor H, Kleine I, Bewley S, Loucaides E, Sutcliffe A. Neonatal outcomes of waterbirth: a systematic review and meta-analysis. *Arch Dis Child Fetal Neonatal Ed*. 2016;101(4):F357-365.

⁸ Zanetti-Dällenbach, R., et al. "Water Birth: Is the Water an Additional Reservoir for Group B Streptococcus?" *Archives of Gynecology and Obstetrics*, vol. 273, no. 4, Jan. 2006, pp. 236–38, doi:10.1007/s00404-005-0067-1.

⁹ Zanetti-Dallenbach, R., et al. "Neonatal Colonization-Rate with Group B Streptococcus Is Lower in Neonates Born Underwater than after Conventional Vaginal Delivery." *GEBURTSILF UND FRAUENHEILKUNDE*, vol. 67, no. 10, 2007, pp. 1114–19, doi:10.1055/s-2007-965679.

¹⁰ Cluett ER, Burns E, Cuthbert A. Immersion in water during labour and birth. *Cochrane Database Syst Rev*. 2018;5(5):CD000111.

¹¹ Royal College of Midwives (RCM). *Evidence Based Guidelines for Midwifery-Led Care in Labour: Immersion in Water for Labour and Birth*. London: RCM; 2012.

¹² ACNM Division of Standards and Practice, Clinical Documents Section. April 2014: Hydrotherapy during labor and birth. <http://www.midwife.org/ACNM/files/ACNMLibraryData/UPLOADFILENAME/000000000286/Hydrotherapy-During-Labor-and-Birth-April-2014.pdf>.

¹³ American Association of Birth Centers (AABC). Immersion in water during labor and birth [Position statement]. April 2014 http://c.ymcdn.com/sites/www.birthcenters.org/resource/collection/46992E86-D0A4-476E-8B09-F5ECE203B16E/AABC_Position_Statement_-_Immersion_in_Water_during_Labor_and_Birth.pdf.

¹⁴ Care Quality Commission (CQC). *National findings from the 2013 survey of women's experiences of maternity care*. cqc.org.uk/sites/default/files/documents/maternity_report_for_publication.pdf

¹⁵ Baxter L. What a difference a pool makes: making choice a reality. *British Journal of Midwifery* 2006;14(6):368-373.

¹⁶ Bovbjerg, Marit L., et al. "Maternal and Newborn Outcomes Following Waterbirth: The Midwives Alliance of North America Statistics Project, 2004 to 2009 Cohort." *Journal of Midwifery & Women's Health*, vol. 61, no. 1, Jan. 2016, pp. 11–20, doi:10.1111/jmwh.12394.