AIMS For a better birth...

High BMI waterbirth – time for trusts to take the plunge?

To read or download this Journal in a magazine format on ISSUU, please clickhere

AIMS Journal, 2019, Vol 31, No 2

By Amber Marshall



The Winterton Report[1] in 1992 recommended that all maternity services provide women with the option to labour and/or birth in water (in this article I'm going to use 'waterbirth' as a catch-all term for both), and by 2007 95% of maternity services in the UK had a birthing pool[2]. While there are no updates to these figures available, it is probably reasonable to assume that most trusts have at least one birth pool, with further options available through using home birthing pools.

Current NICE Guidance on intrapartum care for healthy women and babies[3] expressly recommends caregivers 'Offer the woman the opportunity to labour in water for pain relief', yet in many cases, despite the absence of other risk factors, anyone with a BMI over 40 (or in some Trusts, over 35) is automatically excluded from this option.

I take as an example, picked at random from a Google search; Salisbury NHS Trust's Clinical Management Guide to Underwater Labour & Birth[4] which states, as anticipated; 'Women with a BMI above 40 at booking will not be able to labour or deliver in water.'

Of course, what Salisbury NHS Trust means is that women with a BMI above 40 'will not be***permitted*** to labour or deliver in water on ***their*** premises'. I, and many others with a BMI of 40+ can conclusively prove that we are perfectly ***able*** to do so, but we sadly often have to put up a fight with our caregivers (and in many instances insist on a home birth) in order to achieve a water birth.

The 2012 Cochrane Review on Pain Management in Labour[5] had this to say about the benefits of waterbirth:

- Warm water immersion during labour, including birth, for relaxation and pain relief, has a long history in lay and clinical care[6].
- The buoyancy of water enables a woman to move more easily than on land[7].
- Promotes the neuro‐hormonal interactions of labour, alleviating pain, and potentially optimising the progress of labour.[8; 9]
- May be associated with improved uterine perfusion, less painful contractions, and a shorter labour with fewer interventions[10; 11; 12; 13; 14; 15].
- Reduces blood pressure due to vasodilatation of the peripheral vessels and redistribution of blood flow[16; 17].
- Potentially increased maternal satisfaction and sense of control[16; 17].
- The fetus may also benefit if it causes the mother to feel more relaxed, as this optimises placental perfusion, and release of endogenous opioids (endorphins and encephalins)[18].
- When the mother is not fearful, oxytocin release is optimised, stimulating effective contractions[18].
- The increase in maternal mobility may optimise fetal position by encouraging flexion[18].

If we compare the list of potential benefits with the maternal and fetal risks for labour and birth in women with a BMI ≥30 kg/m2 listed in the RCOG Management of Women with Obesity in Pregnancy Guidelines[19]:

- Higher risk of anaesthesia-related complications[20]
- Hypertension[21, 22]
- Slower labour progress[23; 24; 25]
- Shoulder dystocia (primary treatment of which is flexion of the mother)[26; 27]
- Higher risk of post partum haemorrhage (PPH)[21; 27]
- (Not mentioned in the RCOG guidance, but often cited as increasingly likely in women with obesity is an increased risk of instrumental birth[26], however subsequent studies have found the opposite to be true[28].)

We can see that there is a significant overlap in the two lists, except for PPH which seems unaffected by water immersion[29]. (Active management of third stage is the recommended course of action to reduce incidence of PPH in women with obesity by RCOG Guidance[19] which is compatible with waterbirth).

This overlap suggests that waterbirth could offer some very real benefits to women with obesity. Swann

and Davies, in their article 'The role of the midwife in improving normal birth rates in obese women' in the British Journal of Midwifery, suggested that the advantages of using water in labour are equally, if not more applicable to obese women[30], and A Kerrigan et al's qualitative study of Clinician's management of obese pregnant women during labour[31] suggests that care givers agree:

> *"One of the difficulties that people with high BMIs have is difficulty in changing positions….and to have somebody like that buoyant in water takes all the pressure off their pelvis……"*
>
> *"I think we should be educating them about mobility and about being mobile"*
>
> *"That's the difficulty with water birth isn't it? Because they are the ideal sort of group to benefit….the weightlessness"*

So if clinicians are aware of this, why are women with a high BMI still routinely discouraged, and often actively prevented from having water births?

Returning to the example of Salisbury NHS Trust's Clinical Management Guide to Underwater Labour & Birth[4], no reasons for this arbitrary limit are given; a situation replicated across the UK, with many posts on pregnancy and parenting forums from frustrated women bearing witness to it. It is very difficult to find written justification, and since guidelines as these are the reference point for clinicians, it is unsurprising that refusal reasons given in consultations are often vague. Most seem to stem from[31]:

- Manual handling assumptions
- Emergency evacuation concerns
- Perceived difficulty with fetal monitoring

It feels somewhat disingenuous for hospital trusts to fall back on these excuses, as with minimal effort and planning, all can be overcome.

Aside from the automatic exclusion of anyone with a 40+ BMI, Salisbury NHS' Guide states "Womenwith a BMI of over 35 at booking should be informed that their suitability for labouring and or delivering in water will be individually assessed as to their ability to leave the pool"[4]. Surely this should be extended to all prospective pool users? Not everyone with a BMI of 35+ is immobile, and not everyone with a BMI of 34 or less is agile. To make assumptions on someone's abilities, and then through that decide their care pathway solely based on a mathematical function of their height and weight, is absurd.

A report by the Health & Safety Executive (HSE)[32] details the manual handling risks to midwives associated with birthing pools; which are largely due to poor ergonomics prompting poor posture in the midwife attending or from the midwife actively supporting the mother on entry/exit. However, the report goes on to give examples of good pool design to mitigate against these risks, which are not exclusive to the care of those with high BMIs.

The HSE report also looks at emergency evacuation; *"The two main methods reported for removing the mother from the pool in an emergency are a patient hoist (and sling) or a purpose designed lifting net.. the hoist method was least preferred by midwives... however, for maternity units with limited numbers of midwives, the*

hoist method is preferred as a minimum of 4 staff would be required for the net method."

The emergency evacuation scenario is probably the most often cited reason for denial of access; specifically 'the hoist isn't strong enough'. But using BMI in this example is fallacious when a 5'6" woman weighing 15st 5lbs (BMI 34) is allowed to use the pool, yet a 5' woman, weighing 13st 3lbs isn't (BMI 36). A hoist's safe working load is determined by weight, not BMI.

In any case, the RCOG Management of Women with Obesity in Pregnancy Guidelines recommends equipment is supplied with 'safe working loads up to 250kg'[19] (i.e. sufficient for someone of 6'6" with a BMI of 62) and 'lifting and lateral transfer equipment' is specifically listed. So if we're following the rest of the guidelines which have been published for nearly a decade, why aren't suitable hoists routinely available?

If emergency evacuation is needed with an inflatable pool, caregivers can open the valve on the centre ring. Normally home birth pools have three inflatable rings; deflating any one of these will very quickly reduce the height of the pool as the water replaces the space previously occupied by the air-filled ring, bringing the water level nearer the top and thereby enabling the woman to be evacuated more easily. The pool retains its shape and strength, however, somewhat like a quick-set paddling pool with only one inflatable ring at the rim. It is likely that the water will still be contained within the pool although a small amount may come over the top – but the water level being close to or near the top of the pool helps to support the woman's weight as she's lifted out. This is similar to the guidelines for solid pools in hospitals where it is normally advised to put MORE water into the pool, to provide buoyancy during the evacuation.

It is sometimes suggested that puncturing the pool with scissors or a knife would be a suitable emergency plan, however this should ***never*** be recommended. While it would have the desired effect of bringing the woman to the floor, the descent would be rapid; the woman's trajectory would be uncontrolled, potentially propelling her towards the blade used to puncture the pool; without suitable drainage there is a danger to all present from the possibility of the water coming into contact with electrical equipment; and a potential infection control risk from the spread of water and bodily fluids.

It is worth noting that any person, no matter their size, will be challenging to lift if they collapse completely (as anyone with an exhausted toddler knows!). It is therefore important to have an effective protocol in place for this scenario, irrespective of BMI/weight. Clinical management must also come into play here, by asking the woman if she would consider evacuating the pool if there are any concerns that might indicate collapse before the situation becomes an emergency. Indeed, this already seems to be the case, according to the HSE report; *"These methods are rarely used because most situations are clinically managed before it gets to an emergency evacuation state."*[32]

Lastly, the issue of fetal monitoring. Technology is always advancing, and with waterproof and increasingly wireless telemetry equipment available, this need not be a barrier to pool use, even where continuous fetal monitoring is indicated[30]. Surely, rather than exclude women on the basis of an

unproven assumption that fetal monitoring will be problematic, a judgement can wait until it actually proves to be so after all available options have been explored? In such a circumstance, any labouring mother would undoubtedly be happy to exit the pool to enable different equipment to be used; getting into a birth pool is not an irreversible situation! There is some discussion in any case that the routine use of continuous fetal monitoring in high BMI pregnancies is neither advisable nor beneficial, and promotes an over-medicalised approach[31].

There is a paucity of good quality evidence on the safety and efficacy of waterbirth for***any*** pregnancy; the 2009 Cochrane Review; Immersion in water during labour and birth[33] supports many of the earlier assertions of the benefits of immersion in water, but last year's Cochrane Review[34] of the same name by the same authors now seems more cautious, saying there isn't really great evidence for any of them, and advocating for more research.

This means it is important to remember when discussing and planning for labour in someone with a high BMI that there is no evidence that a waterbirth is unsafe, any more than there is evidence that it is***more*** safe. There is simply no evidence to support either hypothesis. I hope this will be rectified by research in future, though I've been waiting for it for 10 years already.

In 2003 (the most recent data I could find), total health care costs were estimated to be £1698 for a spontaneous vaginal birth, £2262 for an instrumental vaginal delivery and £3200 for a caesarean section [35]. While financial concerns should never be a primary motivating factor for a change in policy, in today's cash-strapped environment, it seems logical that any options which might promote optimal labours with fewer interventions, thereby reducing the risk of resultant complications, would both benefit women with obesity and reduce the burden on NHS resources, while increasing satisfaction. For me, this means rethinking policies on water birth in cases of high BMI urgently. We have everything to gain from doing so, particularly because the current policies force scores of high BMI women such as myself into having home births we don't necessarily want, against medical advice, purely to access a birth pool.

Amber Marshall
Founder of BigBirthas.co.uk

References:

[1] https://capitadiscovery.co.uk/dmu/items/186776 Second report [from the] Health Committee session 1991-92: maternity services. Vol.1, Report together with appendices and the proceedings of the Committee. *Winterton et al 1992*

[2] https://www.ncbi.nlm.nih.gov/pubmed/23281901 Characteristics, interventions, and outcomes of women who used a birthing pool: a prospective observational study.*Burns et al* 2012

[3] https://www.nice.org.uk/guidance/cg190/chapter/Recommendations#pain-relief-in-labour-nonregional

[4] http://www.icid.salisbury.nhs.uk/ClinicalManagement/MaternityNeonatal/Pages/UnderwaterLabourandBirth.aspx Salisbury NHS Trust Clinical Management Guide to Underwater Labour & Birth 2015

[5] https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD009234.pub2/fullPain management for women in labour: an overview of systematic reviews. Cochrane Systematic Review, Jones et al 2012

[6] Garland D, Jones. Waterbirths: supporting practice with clinical audit.*MIDIRS Midwifery Digest* 2000;10(3):333–6.

[7] https://insights.ovid.com/crossref?an=00004630-198711000-00031Edlich RF, Towler MA, Goitz RJ, Wilder RP, Buschbacher LP, Morgan RF, et al. Bioengineering principles of hydrotherapy.*Journal of Burn Care and Rehabilitation* 1987;8:580–4.

[8] https://www.magonlinelibrary.com/doi/abs/10.12968/bjom.1998.6.10.659Ginesi L, Niescierowicz R. Neuroendocrinology and birth 1: stress. *British Journal of Midwifery* 1998;6(10):659–63.

[9] https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD002006.pub2/fullGinesi L, Niescierowicz R. Neuroendocrinology and birth 2: The role of oxytocin.*British Journal of Midwifery* 1998;6(12):791–6.

[10] https://obgyn.onlinelibrary.wiley.com/doi/abs/10.1111/j.1479-828X.1997.tb02240.xAird IA, Luckas MJM, Buckett WM, Bousfield P. Effects intrapartum hydrotherapy on labour parameters. *Australian and New Zealand Journal of Obstetrics and Gynaecology* 1997;37(2):137–42.

[11] Garland D, Jones. Waterbirths: supporting practice with clinical audit.*MIDIRS Midwifery Digest* 2000;10(3):333–6.

[12] Geissbuehler V, Eberhard J. Waterbirths a comparative study. A prospective study on more than 2,000 waterbirths. *Fetal Diagnosis and Therapy* 2000;15(5):291–300.

[13] Moneta J, Okninska A, Wielgos M, Przybos A, Szymusik I, Marianowski L. Patient's preferences concerning the course of labor. *Ginekologia Polska* 2001;72(12):1010–8.

[14] https://www.ejog.org/article/S0301-2115(99)00238-9/fulltextOtigbah CM, Dhanjal MK, Harmsworth G. A retrospective comparison of water births and conventional vaginal deliveries.*European Journal of Obstetrics & Gynecology and Reproductive Biology* 2000;91(1):15–20.

[15] Schorn MN, McAllister JL, Blanco JD. Water immersion and the effect on labor.*Journal of Nurse‐Midwifery*1993;38(6):336‐42.

[16] https://www.midwiferyjournal.com/article/S0266-6138(98)90112-7/pdfHall SM, Holloway IM. Staying in control: women's experiences of labour in water.*Midwifery* 1998;14(1):30‐6.

[17] Richmond H. Women's experiences of waterbirth.*Practising Midwife* 2003;6(3):26‐31.

[18] https://obgyn.onlinelibrary.wiley.com/doi/full/10.1034/j.1600-0412.2001.080004311.xOhlsson G, Buchhave P, Leandersson U, Nordstrom L, Rydhstrom H, Sjolin I. Warm tub bathing during labor: maternal and neonatal effects.*Acta Obstetricia et Gynecologica Scandinavica* 2001;80:311‐4.

[19] https://www.rcog.org.uk/globalassets/documents/guidelines/cmacercogjointguidelinemanagementwomenobesitypregnancya.pdf CMACE/RCOG Joint Guideline Management of Women with Obesity in Pregnancy, J Modder MRCOG, CMACE and KJ Fitzsimons Ph.D, CMACE, March 2010 Appendix 3

[20] Lewis G, editor. Confidential Enquiry into Maternal and Child Health. Saving Mothers' Lives - Reviewing maternal deaths to make motherhood safer 2003-2005. London: CEMACH, 2007.

[21] Sebire NJ, Jolly M, Harris JP, Wadsworth J, Joffe M, Beard RW, et al. Maternal obesity and pregnancy outcome: a study of 287,213 pregnancies in London. International Journal of Obesity & Related Metabolic Disorders: Journal of the International Association for the Study of Obesity 2001;25(8):1175-82.

[22] Bhattacharya S, Campbell DM, Liston WA, Bhattacharya S. Effect of Body Mass Index on pregnancy outcomes in nulliparous women delivering singleton babies. BMC Public Health 2007;7:168.

[23] Vahratian A, Zhang J, Troendle JF, Savitz DA, Siega-Riz AM. Maternal prepregnancy overweight and obesity and the pattern of labor progression in term nulliparous women. Obstetrics and Gynecology 2004;104(5):943- 951.

[24] Nuthalapaty FS, Rouse DJ, Owen J. The association of maternal weight with cesarean risk, labor duration, and cervical dilation rate during labor induction.[erratum appears in Obstet Gynecol. 2004 May;103(5 Pt 1):1019]. Obstetrics and Gynecology 2004;103(3):452-6.

[25] Bianco AT, Smilen SW, Davis Y, Lopez S, Lapinski R, Lockwood CJ. Pregnancy outcome and weight gain recommendations for the morbidly obese woman. Obstetrics and Gynecology 1998;91(1):60-64.

[26] Cedergren MI. Maternal morbid obesity and the risk of adverse pregnancy outcome. Obstetrics and Gynecology 2004;103(2):219-24.

[27] Usha Kiran TS, Hemmadi S, Bethel J, Evans J. Outcome of pregnancy in a woman with an increased body mass index. BJOG: An International Journal of Obstetrics and Gynaecology 2005;112(6):768-772.

[28] https://fn.bmj.com/content/96/Suppl_1/Fa88.1 Revisiting instrumental vaginal delivery rates in obese pregnant women, D Janga, M Parisaei, K Erskine, 2009

[29] https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-14-160 A comparison of maternal and neonatal outcomes between water immersion during labor and conventional labor and delivery, Yinglin Liu, Yukun Liu, Xiuzhi Huang, Chuying Du, Jing Peng, Peixian Huang and Jianping Zhang

[30] https://www.magonlinelibrary.com/doi/abs/10.12968/bjom.2012.20.1.7 Swann L, Davies S. The role of the midwife in improving normal birth rates in obese women. Br J Midwifery. 2012

[31] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4603577/ Obesity and normal birth: A qualitative study of clinician's management of obese pregnant women during labour, A Kerrigan, C Kingdon and H Cheyne 2015

[32] http://www.hse.gov.uk/research/rrpdf/rr1132.pdf Manual handling risks to midwives associated with birthing pools: literature review and incident analysis 2018

[33] https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD000111.pub3/information Immersion in water during labour and birth, Cochrane Systematic Review, E Cluett and E Burns, 2009

[34] https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD000111.pub4/full Immersion in water during labour and birth, Cochrane Systematic Review, E Cluett, E Burns and A Cuthbert, 2018

[35] https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/j.1471-0528.2002.01032.x The economic costs of alternative modes of delivery during the first two months postpartum: results from a Scottish observational study, S Petrou and C Glazener 2003