A woman's right to choose a water birth is now enshrined in government policy:

We recommend that all hospitals make it their policy to make full provision whenever possible for women to choose the position which they prefer for labour and birth with the option of birthing pool where this is practicable.[1]

Women should have the opportunity to labour in water as this is often far more comfortable. Hospitals are urged to make sure the facilities are in place for this: three pools for 1,000 births a year is seen as adequate provision.[2]

The study cited below found that only 3 per cent of women who used water in labour used pethidine as well, compared to 60 per cent of women who laboured on land. A reduction in the use of such narcotic drugs is welcomed by all concerned, as its is now widely recognized that they can have a depressive effect on both mother and baby's central nervous system and may lead to a variety of complications.[3]

RCM Protect Maternity Services Campaign

The next few years will be tough ones for the National Health Service. Despite having a ring-fenced budget, health spending will nonetheless come under intense pressure.

The Royal College of Midwives will fight to protect maternity services. Managers must not be allowed to take the easy option and salami-slice frontline budgets like as the one for maternity care. This is especially so as the number of babies being born has continually outstripped any rise in the number of midwives, even when the NHS budget was booming.

Midwives were last in the queue in the good times; they must not now be at the head of the queue for cuts. The NHS must be imaginative and innovative in finding efficiencies that do not hit the frontline. Mothers and their babies must not suffer because politicians have overspent.

The RCM will be making the case to protect maternity services and we'll be doing that throughout the UK.

NCT Position Statement

The NCT would like all women to have the opportunity to use a birth pool during labour. It is possible to use an ordinary bath or get comfort from sitting under a shower while in labour. But a birth pool, being larger, provides greater comfort and freedom of movement, enabling women to adopt a range of different positions depending on what feels most comfortable.[4]

What the Research Reveals

The use of water for labour and/or birth, is growing in popularity - and rightly so. A recent study from Switzerland analyzed some 5,900 vaginal births, more than 2,000 of which were done in water. The findings were significant in several ways.

Waterbirth mothers were found to have a much lower episiotomy: 12.8% vs. 35.4% for mothers who had a bed birth. Waterbirth mothers also lost less blood and used fewer painkillers. Their newborns scored higher on the Apgar scale than other babies.

---

[1] Winterton, N, House of Commons Health Committee, Second Report – Maternity Services. 23 February 1992, ISBN 0 10 28392 4

[2] New NHS guidelines on childbirth, 26 September 2007

[3] Garland, D. & Jones, K. Waterbirth, supporting practice with clinical audit. MIDIRS Midwifery Digest (September 2000) 10:3, pp 333-336

[4] www/nct.org.uk

Research and studies from around the world substantiate these assertions:

Gynakol Geburtshilfliche Rundsch. 2007;47(2):76-80.
Giving birth in the water: experience after 1,825 water deliveries. Retrospective descriptive comparison of water birth and traditional delivery methods
Thöni A, Zech N, Ploner F., Abteilung fur Gynaekologie und Geburtshilfe, Landeskrankenhaus Sterzing, Sterzing, Italien. gynaekologie.sterzing@sb-brixen.it

Objective: We reviewed 1,825 water births at a single institution over a 9-year period.

Methods: We compared 830 primipara deliveries in water with 424 primipara deliveries in the traditional bed and 136 on the delivery stool. We also evaluated the duration of labour, arterial cord blood pH and base excess in the primiparae, and perineal trauma, shoulder dystocia and deliveries after preceding caesarean section as well as rates of neonatal infection in all the 1,825 water births.

Results: The duration of the first stage of labour was significantly shorter with water births than with the other delivery positions. The episiotomy rate for all water births was found to be much lower compared to deliveries carried out in the bed or on the birthing stool. The rate of perineal tears was similar. There were no differences in the duration of the second stage, arterial cord blood pH and base excess. No woman using the water birth method required analgesics. There were 3 shoulder dystocias with water births. Sixty-eight women delivered in water after a preceding caesarean section.

Conclusion: Water births appears to be associated with a significantly shorter first stage of labour, a lower episiotomy rate and reduced analgesic requirements when compared with other delivery positions. If women are selected appropriately, water birth appears to be safe for both the mother and neonate. The rate of water births increased steadily to 49% of all spontaneous deliveries. The episiotomy rate decreased from over 80% to under 10%. The cesarean section rate remained lower than that in the national database. Changes in other obstetric interventions were less pronounced. Conclusion: Alternative delivery methods, particularly water birth, have become popular. This shift has helped keep the cesarean delivery rate low and decrease the episiotomy rate and has prompted more careful use of other obstetric interventions.

GEBURTSHILFE UND FRAUENHEILKUNDE, vol.62, no.10, pp.977-981,2002
Water birth - A review of 969 deliveries and a comparison with other delivery positions
Thöni A, Mussner K; Sterzing, Italy

Purpose: The object of our study was to analyze 969 consecutive water births and compare them with other delivery positions. Methods: We compared 969 water births, 515 deliveries in the traditional bed, and 172 deliveries on the delivery stool. Duration of labor, rates of episiotomies and lacerations, arterial cord blood pH, analgesic requirements and postpartum maternal hemoglobin levels were analyzed.

Results: The first stage of labor was significantly shorter in primiparas with water birth compared with the other delivery positions (381 vs. 473 min). There were no differences in the duration of the second stage. The low episiotomy rate with the water births (0,52% compared with 17,2% and 7,6% for the other two positions) was not associated with an increased rate of perineal lacerations (23% in all three groups). Of the primiparas, 58% had no lacerations with water birth compared with 36% and 48% for the other positions, respectively. No woman with water birth required analgesics. There were no differences among the groups in arterial cord blood pH, in base-excess or postpartal maternal hemoglobin level.

Conclusions: Our results suggest that water birth is associated with a significantly shorter first stage of labor, a lower episiotomy rate, fewer perineal lacerations, and reduced analgesic requirements compared with other delivery positions. Water birth appears to be safe for the mother and the fetus-neonate if candidates are selected appropriately.

Eur J Obstet Gynecol Reprod Biol. 2000 Jul; 91(1):15-20.
A retrospective comparison of water births and conventional vaginal deliveries.
Otigbah CM, Dhanjal MK, Harmsworth G, Chard T., Department of Obstetrics and Gynaecology, Homerton Hospital, London, UK.

The aim of this study was to document the practice of water births and compare their outcome and safety with normal vaginal deliveries. A retrospective case-control study was conducted over a five year period from 1989 to 1994 at the Maternity Unit, Rochford Hospital, Southend, UK.

Three hundred and one women electing for water births were compared with the same number of age and parity matched low risk women having conventional vaginal deliveries. Length of labour; analgesia requirements; Apgar scores; maternal complications including perineal trauma, postpartum haemorrhages, infections; fetal and neonatal complications including shoulder dystocias; admissions to the Special Care Baby Unit, and infections were noted.

Primigravidae having water births had shorter first and second stages of labour compared with controls ($P<0.05$ and $P<0.005$ respectively), reducing the total time spent in labour by 90 min (95% confidence interval 31 to 148). All women having water births had reduced analgesia requirements. No analgesia was required by 38% (95% confidence interval 23.5 to 36.3, $P<0.0001$) and 1.3% requested opiates compared to 56% of the controls (95% confidence interval 46. 3 to 58.1, $P<0.0001$). Primigravidae having water births had less perineal trauma ($P<0.05$). Overall the episiotomy rate was 5 times greater in the control group (95% confidence interval 15 to 26.2, $P<0.0001$), but more women having water births had perineal tears (95% confidence interval 6.6 to 22.6, $P<0.001$). There were twice as many third degree tears, post partum haemorrhages and admissions to the Special Care Baby Unit in the controls, although these differences were not significant. Apgar scores were comparable in both groups. There were no neonatal infections or neonatal deaths in the study. This study suffers from many of the methodological problems inherent in investigation of uncommon modes of delivery. However, we conclude that water births in low risk women delivered by experienced professionals are as safe as normal vaginal deliveries. Labouring and delivering in water is associated with a reduction in length of labour and perineal trauma for primigravidae, and a reduction in analgesia requirements for all women.

Cochrane Database Syst Rev. 2004;(2):CD000111.
Immersion in water in pregnancy, labour and birth.
Cluett ER, Nikodem VC, McCandlish RE, Burns EE., School of Nursing and Midwifery, University of Southampton, Nightingale Building (67), Highfield, Southampton, Hants, UK, SO17 1BJ.

Background: Enthusiasts for immersion in water during labour, and birth have advocated its use to increase maternal relaxation, reduce analgesia requirements and promote a midwifery model of supportive care. Sceptics are concerned that there may be greater harm to women and/or babies, for example, a perceived risk associated with neonatal inhalation of water and maternal/neonatal infection.

Objectives: To assess the evidence from randomised controlled trials about the effects of immersion in water during pregnancy, labour, or birth on maternal, fetal, neonatal and caregiver outcomes.

Search Strategy: We searched the Cochrane Pregnancy and Childbirth Group trials register (September 2003).

Selection criteria: All randomised controlled trials comparing any kind of bath tub/pool with no immersion during pregnancy, labour or birth.

Data collection and analysis: We assessed trial eligibility and quality and extracted data independently. One reviewer entered the data and another checked them for accuracy.

Main results: Eight trials are included (2939 women). No trials were identified that evaluated immersion versus no immersion during pregnancy, considered different types of baths/pools, or considered the management of third stage of labour. There was a statistically significant reduction in the use of epidural/spinal/paracervical analgesia/anaesthesia amongst women allocated to water immersion water during the first stage of labour compared to those not allocated to water immersion (odds ratio (OR) 0.84, 95% confidence interval (CI) 0.71 to 0.99, four trials). There was no significant difference in vaginal operative deliveries (OR 0.83, 95% CI 0.66 to 1.05, six trials), or caesarean sections (OR 1.33, 95% CI 0.92 to 1.91). Women who used water immersion during the first stage of labour reported statistically significantly less pain than those not labouring in water (40/59 versus 55/61) (OR 0.23, 95% CI 0.08 to 0.63, one trial). There were no significant differences in incidence of an Apgar score less than 7 at five minutes (OR 1.59, 95% CI 0.63 to 4.01), neonatal unit admissions (OR 1.05, 95% CI 0.68 to 1.61), or neonatal infection rates (OR 2.01, 95% CI 0.50 to 8.07).

Reviewers conclusions: *There is evidence that water immersion during the first stage of labour reduces the use of analgesia and reported maternal pain, without adverse outcomes on labour duration, operative delivery or neonatal outcomes.* The effects of immersion in water during pregnancy or in the third stage are unclear. One trial explores birth in water, but is too small to determine the outcomes for women or neonates.

JOURNAL OF PERINATAL MEDICINE, vol.32, no.4,pp.308-314,2004

Waterbirths compared with landbirths: an observational study of nine years

V. Geissbüehler, S.Stein, J. Eberhard; Department of Obstetrics and Gynecology, Cantonal Hospital, Frauenfeld, Switzerland

Aims: This study compares neonatal and maternal morbidity and mortality between waterbirths and landbirths, (spontaneous singleton births in cephalic presentation, vacuum extractions are excluded). Methods: In this observational study covering nine years, standardized questionnaires were used to document 9,518 spontaneous singleton cephalic presentation births, of which 3,617 were waterbirths and 5,901 landbirths.

Results: Landbirths show higher rates of episiotomies as well as third and fourth degree perineal lacerations. Waterbirths show a higher rate of births without injuries, first and second-degree perineal lacerations, vaginal and labial tears. After a waterbirth, there is an average loss of 5.26 g/l blood; this is significantly less than landbirths where there is an 8.08 g/l blood loss on average. In 69.7% waterbirths required no analgesic, compared to 58.0% for landbirths. Water and landbirths do not differ with respect to maternal and neonatal infections. After landbirths, there was a higher rate of newborn complications with subsequent transfer to an external NICU. During the study, there were neither maternal nor neonatal deaths related to spontaneous labor.

Conclusions: Waterbirths are associated with low risks for both mother and child when obstetrical guidelines are followed.

J Psychosom Obstet Gynaecol. 2005 Jun; 26(2):127-33.
Experience of pain and analgesia with water and land births.
Eberhard J, Stein S, Geissbüehler V., Department of Obstetrics and Gynaecology, Cantonal Hospital, Frauenfeld, Switzerland.

Labor is one of the most painful experiences in a woman's life. Does water birth influence the pain experienced? Data from an ongoing, longitudinal, prospective observational study that spans 9 years and includes questionnaires from 12,040 births were used to evaluate pain perception (visual analogue scale (VAS)) and analgesic use. Three birthing methods were compared: water birth, bed birth and Maia stool birth. Based on the VAS, the data show that the different birthing methods do not influence the intensity of pain throughout the different stages of labor. The only significant difference noted was that bed births are more painful in the early first stage and less painful at the end of the second stage. This later difference may be due to increased use of epidural anesthesia in women choosing a bed birth. Women who choose bed births are significantly less likely than others to have an analgesic-free birth. For primiparas, there is also a small but significant difference showing that water births are less likely to require analgesics compared to Maia stool births. No such difference is seen in women who have given birth previously.

We conclude that women who choose bed births perceive more pain in the early first stage of labor, leading them to be more likely to choose an epidural anesthesia in the late first stage, or to use other types of analgesics. Women who choose water births or Maia stool births are more likely to get through labor without using any analgesics.

J Matern Fetal Neonatal Med. 2005 May; 17(5):357-61.
Review of 1600 water births. Does water birth increase the risk of neonatal infection?
Thoeni A, Zech N, Moroder L, Ploner F.
Department of Gynaecology and Obstetrics, Vipiteno/Sterzing, Italy. gynaekologie.sterzing@as-bressanone.it

Objectives: We reviewed 1600 water births at a single institution over an 8-year period.

Methods: We compared 737 primiparae deliveries in water with 407 primiparae deliveries in bed, and 142 primiparae on the delivery stool. We also evaluated the duration of labor, perineal trauma, arterial cord blood pH, postpartum maternal hemoglobin levels, and rates of neonatal infection. In 250 water deliveries we performed bacterial cultures of water samples obtained from the bath after filling and after delivery.

Results: The duration of the first stage of labor was significantly shorter with a water birth than with a land delivery (380 vs. 468 minutes, $P<0.01$). The episiotomy rate in all water births was lower with a water birth than with a delivery in bed or a delivery on the birthing stool (0.38%, 23%, and 8.4%, respectively). The rate of perineal tears was similar (23%, respectively). There were no differences in the duration of the second stage (34 vs. 37 minutes), arterial cord blood pH, or postpartum maternal hemoglobin levels. No woman using the water birth method required analgesics. The rate of neonatal infection was also not increased with a water birth (1.22% vs. 2.64%, respectively).

Conclusion: Water birth appears to be associated with a significantly shorter first stage of labor, lower episiotomy rate and reduced analgesic requirements when compared with other delivery positions. If women are selected appropriately and hygiene rules are respected, water birth appears to be safe for both the mother and neonate.

Arch Iran Med. 2009 Sep;12(5):468-71.
Experience of water birth delivery in Iran.
Chaichian S, Akhlaghi A, Rousta F, Safavi M.; Department of Obstetrics and Gynecology, Islamic Azad University, Tehran Medical Unit, Tehran, Iran. drchaichian@yahoo.com

Background: Having considered the physiologic challenges during pregnancy, scientists have searched for different delivery methods with minimal medical intervention. The use of water immersion by women for relaxing during labor is being used worldwide. We aimed to evaluate the controversies surrounding water birth and to find out the interest of Iranian women in this delivery method.

Methods: In a randomized clinical trial, 106 pregnant women were assigned to control and experimental groups. The experimental group underwent the labor and delivery in standardized warm water pools. The control group gave birth by conventional delivery method at the hospital. A questionnaire was completed during the labor for women in both control and experimental groups including the method of delivery; labor length; use of different drugs such as analgesics, opiates, antispasmodic, and oxytocin; use of episiotomy, and newborn's Apgar score and weight.

Results: Totally, 53 cases and 53 controls with the mean age of 26.4+/-5.9 and 27.1+/-5.9 years, respectively, completed the study. Women in the control group required oxytocin, antispasmodics, opiates, and analgesics more frequently than those in the experimental group (P<0.001). Meanwhile, the active phase and the third stage of labor were shorter experimental group by 72 and 1.3 minutes, respectively (P<0.004, and P<0.04). All the participants in the experimental group gave birth naturally, whereas only 79.2< of the controls had normal vaginal delivery.

Conclusion: Our results revealed the advantage of water birth delivery. Those who gave water birth experienced less pain and completed the delivery sooner. Meanwhile, normal vaginal delivery was accomplished more frequently with this group. These all lead to a decreased necessity for medical interventions as well as an increased socioeconomic advantage for the society.

GEBURTSHILFE UND FR AUENHEILKUNDE,vol.61,no.10,pp.771-777,2001
Alternative delivery methods and changes in obstetric practice
J. Eberhard; V. Geissbüehler, C. Chiffelle, S.Stein; Germany-Switzerland

Objective: In 1991 we instituted a new obstetric concept at our hospital to integrate water birth, alternative delivery positions and less invasive conduct of labor into practice according to the wishes of the mother. The present study analyzed which delivery methods were chosen and how the rate of obstetric interventions has changed.

Methods: We, compared our recent data (12,041 deliveries between 1991 and 1999) with data from our institution before introduction of the new concept (5602 deliveries between 1986 and 1991) and with data from a national database (328,276 deliveries in Switzerland between 1986 to 1999). We compared birth positions and rates of cesarean section, episiotomy, amniotomy, induction or augmentation of labour, and epidural anesthesia.

Results: After 1991 the proportion of women delivered in bed declined to about 40% The rate of water births increased steadily to 49% of all spontaneous deliveries. The episiotomy rate decreased from over 80% to under 10%. The cesarean section rate remained lower than that in the national database. Changes in other obstetric interventions were less pronounced.

Conclusion: Alternative delivery methods, particularly water birth, have become popular. This shift has helped keep the cesarean delivery rate low and decrease the episiotomy rate and has prompted more careful use of other obstetric interventions.

Ceska Gynekol. 2003 May; 68(3):175-9.
Water delivery--a 5-year retrospective study
Pellantová S, Vebera Z, Půcek P., Porodnické a gynekologické oddělenÌ, OkresnÌ nemocnice s poliklinikou Znojmo.

Objectives of Study: Comparison of chosen parameters of the I.-III. stage of labour by women, who conducted waterbirth (Group A) and by women, who delivered conventionally in horizontal position (Group B) and comparison of perinatal and postnatal results of newborns in both groups.

Design: Retrospective study.

Setting: Department of Obstetrics and Gynecology, District Hospital Znojmo.

Methods: Group A constitutes 70 women, who delivered in the period 1.1.1998-30.9.2002 into the water (fetus was expelled under water). Control group B formed 70 women, who delivered in a conventional (horizontal position) and in the same time they did not have any contraindication to waterbirth. At first we compared the length of I. and II. stage of labour, the number of episiotomies, the number of some other kinds of injuries, the postpartal uterine hypotony and the volume of blood loss. In the second phase we evaluated clinical condition of the newborn.

Results: Waterbirth have chosen 1.95% of the women in our department during this period. There is no statistically significant difference in the duration of I. stage of labour in both groups. The II stage was prolonged to 9 against 6 minutes in group A, most probably because of hydroanalgetic effect of warm water, due to some inhibition of contractions and "no interference access" to labour. There is no statistical difference in complications during and after the labour in both groups. By group A we found statistically significant higher number of spontaneous, I. grade perineal ruptures, then in group B and we found reciprocal situation in number of episiotomies in both groups. There were no somatic differences by the newborns in both groups after delivery and we did not find higher occurrence of postnatal pathology by the waterbirth babies either.

Conclusion: Waterbirth is type of alternative obstetrics, which the women in birth demand, but which the obstetricians and neonatologists are afraid of, and which they consider to be possibly hazardous in the same time. There is documented evidence of much less performed episiotomies (nearly of 60%) and higher percentage deliveries without any injury (about of 9%). We did not prove any life or health threatening complication by the women in birth or by their newborns. Newborns from group A have completely comparable peri- and postnatal examination and investigation results with group B. In our study group we did not find higher occurrence of bleeding hypotonic uterus, infections or hypotension by the mother, comparing with the control group. There is often mentioned temporary bluish colour of the newborns by the critics of waterbirth. This appearance we cannot comprehend as a cyanotic demonstration of fetal hypoxia but much more as the consequence of slower transformation from fetal to neonatal blood circulation. The same effect we can observe by the newborns, who were delivered conventionally in horizontal position and who are afterwards longer time connected by umbilical cord. Clear evidence for this contention is completely physiological evaluation and postnatal examination of all newborns by neonatologist after delivery and objective results of ABR and lactate from umbilical artery, which exclude fetal hypoxia too. As the conclusion we can claim, that waterbirth nowadays is one of legitimate methods of alternative obstetrics. The results of our study did confirm that this way of delivery does not represent any risk for the mother or the newborn and that there is no reason for an anxiety of obstetrician and neonatologist.

Gynakol Geburtshilfliche Rundsch. 2003 Jan; 43(1):12-8.
Experience with water births: a prospective longitudinal study of 9 years with almost 4,000 water births
Geissbüehler V, Eberhard J.. Leitende Arztin Frauenklinik, Kantonsspital, Frauenfeld, Switzerland. vgeissbuehler@bluewin.ch

This prospective, longitudinal study spanning more than 9 years examines the influence of the birthing method, in particular water birth, on neonatal and maternal morbidity and mortality. Using questionnaires, maternal and neonatal data of 9,518 spontaneous singleton births with cephalic presentation, including 3,617 water births and 5,901 land births, were compared. Land births show significantly higher rates of episiotomies as well as third- and fourth-degree perineal tears. Waters births show a significantly higher rate of births 'without injuries', first- and second-degree perineal tears, vaginal and labial tears. The average loss of blood after water birth is -5.26 g/l; this is statistically significantly less than after land births at -8.08 g/l. In 69.7%, water births required no analgesic, compared to 30.3% for land births. Water and land births do not differ with respect to maternal and neonatal infections. After land births, there was a significantly higher rate of newborn complications with subsequent transfer to an external NICU. There were neither maternal nor neonatal deaths related to the birthing event. Water births are just as safe as land births if obstetrical guidelines are followed. Risks, such as preeclampsia, signs of infection, meconium-stained amniotic fluid and pathological CTG, are found more frequently in land births and indicate that a safe and prospective birth management is being followed.

Journal of Midwifery and Women's Health, vol. 50, no. 5, pp. 440-440, September, 2005
Underwater or on land: a descriptive analysis of the waterbirth population at Oregon Health & Science University
M. Mack, A. Pechovnik, L. Andronici, N. Tallman, N.K. Lowe, Oregon Health & Science University,Portland, Oregon)

Background: The purpose of this quality improvement project was to differentiate the characteristics of women whose planned waterbirths conclude in water from those whose do not.

Methods: A retrospective, descriptive design was used. Data were extracted from a database maintained by the midwifery practice at OHSU yielding a sample of 309 women who planned waterbirths between 1998 and 2004. Variables of interest included parity, method of delivery, frequency, and method of induction and augmentation, reason for induction and augmentation, and frequency of use of regional and parenteral pain management.

Cochrane Database Syst Rev. 2004;(2):CD000111.
Immersion in water in pregnancy, labour and birth.
Cluett ER, Nikodem VC, McCandlish RE, Burns EE.School of Nursing and Midwifery, University of Southampton, Nightingale Building (67), Highfield, Southampton, Hants, UK, SO17 1BJ.

Background: Enthusiasts for immersion in water during labour, and birth have advocated its use to increase maternal relaxation, reduce analgesia requirements and promote a midwifery model of supportive care. Sceptics are concerned that there may be greater harm to women and/or babies, for example, a perceived risk associated with neonatal inhalation of water and maternal/neonatal infection.

Objectives: To assess the evidence from randomised controlled trials about the effects of immersion in water during pregnancy, labour, or birth on maternal, fetal, neonatal and caregiver outcomes.

Search Strategy: We searched the Cochrane Pregnancy and Childbirth Group trials register (September 2003).
Selection criteria: All randomised controlled trials comparing any kind of bath tub/pool with no immersion during pregnancy, labour or birth.

Data Collection and Analysis: We assessed trial eligibility and quality and extracted data independently. One reviewer entered the data and another checked them for accuracy.

Main Results: Eight trials are included (2939 women). No trials were identified that evaluated immersion versus no immersion during pregnancy, considered different types of baths/pools, or considered the management of third stage of labour. There was a statistically significant reduction in the use of epidural/spinal/paracervical analgesia/anaesthesia amongst women allocated to water immersion water during the first stage of labour compared to those not allocated to water immersion (odds ratio (OR) 0.84, 95% confidence interval (CI) 0.71 to 0.99, four trials). There was no significant difference in vaginal operative deliveries (OR 0.83, 95% CI 0.66 to 1.05, six trials), or caesarean sections (OR 1.33, 95% CI 0.92 to 1.91). Women who used water immersion during the first stage of labour reported statistically significantly less pain than those not labouring in water (40/59 versus 55/61) (OR 0.23, 95% CI 0.08 to 0.63, one trial). There were no significant differences in incidence of an Apgar score less than 7 at five minutes (OR 1.59, 95% CI 0.63 to 4.01), neonatal unit admissions (OR 1.05, 95% CI 0.68 to 1.61), or neonatal infection rates (OR 2.01, 95% CI 0.50 to 8.07).

Reviewers Conclusions: *There is evidence that water immersion during the first stage of labour reduces the use of analgesia and reported maternal pain, without adverse outcomes on labour duration, operative delivery or neonatal outcomes.* The effects of immersion in water during pregnancy or in the third stage are unclear. One trial explores birth in water, but is too small to determine the outcomes for women or neonates.

SUMMARY

Both the Royal College of Obstetricians and Gynaecologists and the Royal College of Midwives support labouring in water for healthy women with uncomplicated pregnancies. The evidence to support underwater birth is less clear but complications are seemingly rare. If good practice guidelines are followed in relation to infection control, management of cord rupture and strict adherence to eligibility criteria, these complications should be further reduced.

BACKGROUND

- Lying in warm water gives a sense of relaxation, but whether it actually reduces pain is less certain. A perception of relaxation, pain relief, ease of movements and more holistic experience made labour in water a popular choice during the 1980s. This concept has been extended to include actual birth under water following widely quoted experience from France. In response to public demand, the Winterton Report recommended that all maternity services provide women with the option to labour and/or give birth in water.

- Recent surveys show that, of 295 UK maternity units for which data on birthing pools were available, 64% had at least one birthing pool, with 20 units having two or more. There are no current data on the number of women who actually use these facilities during labour or for water birth, apart from a postal survey carried out between April 1994 and March 1996, which reported that, at that time, fewer than 1% of births in England and Wales occurred in water.

- Partly in response to the Winterton Report, the Royal College of Obstetricians and Gynaecologists produced a Statement on birth in water in 1994, which was updated in 20015 and the Royal College of Midwives published a Position Paper on the use of water in labour and birth in 1994 (updated in 2000). Both documents endorsed the use of water in labour as a choice, provided that attendants had appropriate skills and confidence to assist women who choose to labour or give birth in water.

LABOURING IN WATER

1. It is important to separate the evidence on benefits and risks of immersion in water during the active phase of labour from those of actual birth in water.

2. There are considerable perceived benefits of using immersion in water during labour, including less painful contractions and less need for pharmacological analgesia, shorter labour, less need for augmentation, with no known adverse effects for the woman herself. However, there may be rare but clinically significant risks for the baby born under water. These include respiratory problems (including the possibility of fresh water drowning), cord rupture with haemorrhage, and waterborne infections.

3. A Cochrane review by Cluett et al provides the most recent evidence on water births. Overall, there was no difference found in the use of analgesia, although women allocated to immersion in water needed less epidural, spinal or paracervical analgesia. There was no significant difference in other important clinical outcomes, including duration of labour, operative delivery and perineal trauma. The same applied to the neonatal outcomes, including neonatal infection, which was rare.

4. The evidence on timing of immersion into water during the first stage of labour was not robust enough to set criteria but early labour could be managed by mobilisation and other activities within a labour room rather than water immersion.

5. Most of the available evidence, both randomised and observational, is restricted to healthy women with uncomplicated pregnancy at term, although induction of labour and previous caesarean section have been managed using water for labour and birth without reported problems. A randomised trial by Cluett et al. on women with prolonged labour found reduction in obstetric intervention following immersion in water but a higher number of babies who needed admission to the neonatal unit. Although there is clearly a need for more research, the currently available evidence does not justify discouraging women from choosing immersion in water during labour. Increasing women's choices for analgesia and the need for maternity services to promote normality are key principles in all UK Maternity Service Framework documents and support provision of birthing pools to be made available for healthy women with uncomplicated pregnancies.11-13

Background

Enthusiasts suggest that labouring in water and waterbirth increase maternal relaxation, reduce analgesia requirements and promote a midwifery model of care. Sceptics cite the possibility of neonatal water inhalation and maternal/neonatal infection.

Objectives
To assess the evidence from randomised controlled trials about immersion in water during labour and waterbirth on maternal, fetal, neonatal and caregiver outcomes.

Search Strategy
We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (October 2008).

Selection Criteria
Randomised controlled trials comparing any bath tub/pool with no immersion during labour and/or birth.

Data collection and analysis
We assessed trial eligibility and quality and extracted data independently. One review author entered data and another checked for accuracy.

Main Results
This review includes 11 trials (3146 women); eight related to the first stage of labour, one to the first and second stages, one to early versus late immersion in the first stage of labour, and another to the second stage. We identified no trials evaluating different baths/pools, or the management of third stage of labour.

Results for the first stage of labour showed there was a significant reduction in the epidural/spinal/paracervical analgesia/anaesthesia rate amongst women allocated to water immersion compared to controls (478/1254 versus 529/1245; odds ratio (OR) 0.82, 95% confidence interval (CI) 0.70 to 0.98, six trials). There was no difference in assisted vaginal deliveries (OR 0.84, 95% CI 0.66 to 1.06, seven trials), caesarean sections (OR 1.23, 95% CI 0.86 to 1.75, eight trials), perineal trauma or maternal infection. There were no differences for Apgar score less than seven at five minutes (OR 1.59, 95% CI 0.63 to 4.01, five trials), neonatal unit admissions (OR 1.06, 95% CI 0.70 to 1.62, three trials), or neonatal infection rates (OR 2.01, 95% CI 0.50 to 8.07, five trials).
A lack of data for some comparisons prevented robust conclusions. Further research is needed.

Authors' Conclusions
Evidence suggests that water immersion during the first stage of labour reduces the use of epidural/spinal analgesia. There is limited information for other outcomes related to water use during the first and second stages of labour, due to intervention and outcome variability. There is no evidence of increased adverse effects to the fetus/neonate or woman from labouring in water or waterbirth. The fact that use of water immersion in labour and birth is now a widely available care option for women threatens the feasibility of a large, multicentre randomised controlled trial.

Randomised controlled trial of labouring in water compared with standard of augmentation for management of dystocia in first stage of labour

Objectives: To evaluate the impact of labouring in water during first stage of labour on rates of epidural analgesia and operative delivery in nulliparous women with dystocia.

Design: Randomised controlled trial.

Setting: University teaching hospital in southern England.

Participants: 99 nulliparous women with dystocia in active labour at low risk of complications.

Interventions: Immersion in water or standard augmentation for dystocia (amniotomy and intravenous oxytocin).

Main outcome measures Primary: epidural analgesia and operative delivery rates. Secondary: augmentation rates with amniotomy and oxytocin, length of labour, maternal and neonatal morbidity including infections, maternal pain score, and maternal satisfaction with care.

Results: Women randomised to immersion in water had a lower rate of epidural analgesia than women allocated to augmentation (47% v 66%, relative risk 0.71 (95% confidence interval 0.49 to 1.01), number needed to treat for benefit (NNT) 5).

They showed no difference in rates of operative delivery (49% v 50%, 0.98 (0.65 to 1.47), NNT 98), but significantly fewer received augmentation (71% v 96%, 0.74 (0.59 to 0.88), NNT 4) or any form of obstetric intervention (amniotomy, oxytocin, epidural, or operative delivery) (80% v 98%, 0.81 (0.67 to 0.92), NNT 5).

Conclusions: Labouring in water under midwifery care may be an option for slow progress in labour, reducing the need for obstetric intervention, and offering an alternative pain management strategy.

(Extract from abstract of *Randomised controlled trial of labouring in water compared with standard of augmentation for management of dystocia in first stage of labour,* Elizabeth R Cluett, Ruth M Pickering, Kathryn Getliffe, Nigel James, St George Saunders published in British Journal of Midwifery, January 26, 2004)

Active Birth Pools

www.activebirthpools.com