

# Midwifery Research Review™

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Issue 15 – 2017

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### Abbreviations used in this issue

**CS** = caesarean section  
**DHB** = District Health Board  
**IPV** = intimate partner violence  
**LMC** = lead maternity carer  
**WHO** = World Health Organization



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## Welcome to the latest issue of Midwifery Research Review.

This month we report a number of international studies that address care throughout the childbirth continuum as well as fear of childbirth in university students. The topics cover the role of acupuncture in miscarriage, use of antenatal corticosteroids for late preterm babies, impact due to ethnic disparities, benefits of case loading midwifery care to prevent preterm birth in young women, IPV and breastfeeding support as well as use of donor human milk and its impact on neurodevelopment in very low birthweight infants.

We hope you find these and the other selected studies interesting, and welcome any feedback you may have.

Kind regards,

**Nimisha Waller**

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## Does acupuncture have a role in the treatment of threatened miscarriage?

**Authors:** Betts D et al.

**Summary:** This study examined the feasibility of offering acupuncture as a therapeutic treatment for women presenting with threatened miscarriage. 40 women with threatened miscarriage were randomised to acupuncture plus medical self-care advice, or touch intervention plus medical self-care advice (controls). Acupuncture significantly reduced threatened miscarriage symptoms including bleeding, cramping and back pain compared with controls ( $p=0.04$ ).

**Comment:** According to the Ministry of Health website and other literature, 10–20% of pregnant women may experience vaginal bleeding in the first trimester. A “watchful waiting” approach is taken when there is a threat to a pregnancy in the first trimester as medications and lifestyle changes have failed to improve pregnancy outcomes. This is the first randomised controlled trial (pilot) that examined the feasibility of offering acupuncture as a therapeutic treatment for women presenting with threatened miscarriage. Forty women were seen twice in the first week of intervention and then weekly till 12 complete weeks’ gestation. To ensure it was ethical, the no treatment group received light touch to non-acupuncture points. Interestingly, 52.3% of women did not meet the entry requirements as they presented at 11+ gestational weeks. Did bleeding commence after 11 weeks or was it earlier and considered to be implantation bleeding? Five women experienced pregnancy loss but with a small sample it was not considered to be significant. Women who participated had all used complementary and alternative medicine before. They felt that they had the opportunity to participate in self-care in a positive way, and felt supported as they had someone to talk to (not evident in the biomedical model of care). It appears that acupuncturists may have a role in working with practitioners and women who perceive such care as relevant. A larger study is required to see if the reduction in symptoms is generalisable and reduces miscarriage rates. A must read to get full information on how the study was conducted and data collected.

**Reference:** *BMC Pregnancy and Childbirth* 2016;16:298

[Abstract](#)

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## Antenatal corticosteroids for maturity of term or near term fetuses

**Authors:** Saccone G & Berghella V

**Summary:** This meta-analysis evaluated the effectiveness of antenatal corticosteroids given at  $\geq 34$  weeks' gestation. Six randomised controlled trials were identified from a search of electronic databases. Three trials included 3200 women at 34–36 weeks' gestation and at risk of imminent premature delivery, and 3 trials included 2498 women undergoing planned caesarean delivery at  $\geq 37$  weeks. Pooled analysis of the data showed that infants of mothers who received antenatal corticosteroids at  $\geq 34$  weeks had a significantly lower risk of severe respiratory distress syndrome (RDS; relative risk, 0.55) compared with controls. Infants of mothers undergoing planned caesarean delivery at  $\geq 37$  weeks' gestation who received prophylactic antenatal corticosteroids 48 hours before delivery also had a significantly lower risk of RDS (relative risk, 0.40) compared with controls.

**Comment:** Premature births account for up to 8% of all deliveries in NZ. About 800 births a year are before 32 weeks – the very pre-term group that would likely be targeted with repeat steroids. There appears to be a lack of clarity around the use of antenatal corticosteroids in pregnancy of 34 weeks' gestation and beyond. The need for clarity has become important as numbers of caesarean sections at both term and late preterm gestations have increased. There is ample evidence that CS predisposes neonates to respiratory complications including RDS and transient tachypnoea. The NZ & Australian Clinical Practice Guideline 2015 suggests (as Practice point) that elective CS at term should be planned at  $\geq 39$  weeks and to use antenatal corticosteroids 48 hours prior to CS if there is known fetal lung immaturity. There is no recommendation at present regarding use of antenatal steroids for imminent late preterm deliveries. This is a meta-analysis of 6 studies: 3 studies of women at 34–36 +6 weeks' gestation and at risk of imminent premature delivery at the time of hospital admission and 3 studies looking at women undergoing planned caesarean delivery at  $\geq 37$  weeks. The initial presentation of results as combined is debatable. The authors do go on to provide results of the 2 categories separately. The inclusion of the absolute risk reductions or numbers needed to treat (NNT) would have been helpful for review of present guidelines. Of interest is the finding of substantial increase in hypoglycaemia in babies whose mothers had been administered antenatal corticosteroids and hence a need to monitor the babies' blood sugar levels. Midwives should continue to follow their local/national guidelines re referral and administration of antenatal corticosteroids until further information is available for guidelines to be revised.

**Reference:** *BMJ* 2016;355:i5044

[Abstract](#)

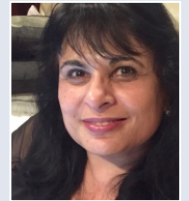
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### Independent commentary by Nimisha Waller

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DHSc Candidate



Nimisha Waller is a Senior Lecturer in the Dept of Midwifery, Faculty of Health and Environmental Science at AUT University. She has practised midwifery in tertiary units and as an LMC. She has been a supervisor and a member of the competency review panel for MCNZ, reviewer for NZCOM Midwifery Standards Review and an NZCOM educator for the Midwifery First Year Practice (MYFP). She is an expert advisor and an Academic member/Deputy Chair on the MOH Compliance panel that monitors the Code in New Zealand (Breastfeeding). Nimisha has a particular interest in maternal wellbeing, diabetes and obesity, newborn, postnatal distress, traumatic birth and PTSD. Her doctoral study is on post-birth conversation between midwives and women and the impact it has on them.

## Exploring the maternal and infant continuum – ethnic disparities in infant hospital admissions for respiratory disease

**Authors:** Lawton B et al.

**Summary:** This study investigated maternal and birth-related risk factors associated with infant respiratory hospitalisations in NZ. Public hospital maternal data were linked to infant data for the period 1995–2009 (54,980 births). Independent risk factors for hospitalisation for respiratory disease in the first year of life included low maternal socioeconomic status, maternal smoking, parity, and preterm birth but not breastfeeding. After adjustment for risk factors, respiratory hospitalisations were highest among infants of young Māori women (rate ratio 1.93 at age 22.5 years) and Pacific women across all maternal age groups (rate ratios 2.43–2.55) compared with infants of European women.

**Comment:** Internationally as well as in NZ there is recognition of the role that social, economic, environmental and political factors play in determining health experiences and outcomes for individuals as well as social groups. Factors such as income, employment status, housing, education, social position, and social exclusion impact directly or indirectly on health, as well as over the lifetime. The findings from this large Māori-led retrospective study would be of no surprise to any of the practitioners involved in primary and preventative care. Other international studies have not considered the socio-demographic status of the mother, unlike this study. Fortunately, there were few exclusions or missing data (6% missing data on 1 or more factors), which improves the generalisability of the findings to the rest of NZ. Inclusion of breastfeeding data and vaccinations from well child services would have provided a fuller picture of the protectiveness of breast milk and timely vaccinations against the development of respiratory disease. Smoking status is now recorded at each contact (rather than at initial contact as found in this dataset) and hence better information regarding reductions of smoking or becoming smoke free from booking with a midwife LMC to post-delivery discharge would be available. As maternal ethnicity remained a significant predictor for infant respiratory hospitalisation, the authors suggest that interventions that begin in pregnancy to address risk factors and social determinants should be trialled and culturally appropriate care environments such as whānau ora, navigator support programmes and improving access to healthy housing assistance should be considered. Reducing hospital admissions for respiratory conditions would not only help in improving the long-term prognosis but also the quality of life of the families involved, resulting in considerable savings in healthcare expenditure.

**Reference:** *ANZ J Public Health* 2017;40:430-35

[Abstract](#)

## How optimal caseload midwifery can modify predictors for preterm birth in young women

**Authors:** Allen J et al.

**Summary:** This mixed methods study identified possible mechanisms by which caseload midwifery can reduce preterm birth in young women (aged  $\leq 21$  years). Integrated analysis of quantitative and qualitative findings showed that optimal caseload midwifery helps young pregnant women develop trusting relationships with their midwife and engage in maternity care. Predictors of preterm birth that are common amongst pregnant adolescents can be reduced by promoting earlier maternity booking, sufficient antenatal care, greater emotional resilience, ideal gestational weight gain, less smoking/drug use, and fewer untreated genito-urinary infections.

**Comment:** The findings from this Australian study provide an opportunity to reflect on the definition of preterm birth in women aged  $<20$  years of age and whether provision of continuity of care improves outcomes for young women in NZ. The Makowharemahihi et al. (2014) study "Initiation of maternity care for young Māori women under age of 20 years" found that young Māori women aged under 20 engaged early with health services to both confirm their pregnancy and initiate maternity care but system barriers delayed timely access to finding and enrolling with an LMC. This resulted in a negative impact on the pregnancy journey for these young women, disrupting access to early antenatal care and hence midwife-woman relationship. Primary care practitioners who took the time to provide additional information and support made a considerable improvement to the maternity care pathway. Improvement in engaging young women with maternity care would ensure timely identification and management of risk factors for preterm birth.

**Reference:** *Midwifery* 2016;41:30-8

[Abstract](#)

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## Domestic violence enhanced perinatal home visits

**Authors:** Sharps P et al.

**Summary:** This study evaluated the use of an IPV intervention during perinatal home visits to reduce violence in abused pregnant women. 239 women experiencing perinatal IPV in urban and rural settings in the US were randomised to the Domestic Violence Enhanced Home Visitation Program (DOVE) intervention group or a usual care control group. Women in the DOVE intervention group (n=124) received a structured abuse assessment and 6 home visitor-delivered empowerment sessions integrated into home visits. IPV decreased significantly from baseline to 1, 3, 6, 12, 18, and 24 months postpartum in the intervention group (all p<0.001). Women in the DOVE group reported a larger mean decrease in IPV scores from baseline compared with women in the usual care group.

**Comment:** In this study, pregnant women who were victims of IPV saw a reduction in exposure to such acts when they participated in the DOVE programme. All study participants received 4–6 visits with a nurse or community health worker during pregnancy and 6–12 visits for up to 2 years postpartum, with half of the women also receiving the DOVE intervention. The DOVE intervention included women working with a nurse or community health worker to discuss the cycle of violence, take the Danger Assessment (which helps weigh their risk of domestic homicide), and review safety planning information. Women in the programme faced fewer instances of violence, had better ability to cope and some felt empowered to leave their abusers. Babies of mothers who experience violence are more likely to be born premature, small in gestational size, and suffer cognitively and emotionally as they grow. The authors suggest that “the focus of DOVE is on empowering women and giving them the resources they need to make their own decisions regarding safety. Once they have those tools, they can continue to use them and find ways to better their situation”. 1 in 3 (35.4%) ever-partnered NZ women report having experienced physical and/or sexual IPV in their lifetime. In 2015, NZ police recorded 6 homicides by an intimate partner. All of the offenders were men. The Violence Intervention Programme supports health sector family violence programmes throughout NZ.

**Reference:** *J Womens Health* 2016;25(11):1129-38

[Abstract](#)

## Breastfeeding support in the early postpartum: content of home visits in the SILC trial

**Authors:** Ridgway L et al.

**Summary:** This report described the content of home visits in the Supporting Breastfeeding in Local Communities (SILC) cluster randomised controlled trial. SILC researchers visited 1,043 women from September 2012 to March 2013, and completed a data sheet for each visit. 91% of home visits included the provision of reassurance to women. Topics that were discussed included general breastfeeding information (83%), supply and demand (83%), positioning (79%), and feeding frequency (78%). The issues and support needs of women were similar across locations (rural, regional or metropolitan), maternal parity and age groups.

**Comment:** Australia has a high breastfeeding initiation rate of 96%. However, in the state of Victoria this sharply declines to 50% of infants receiving any breast milk at 6 months of age. A home visit that focused on infant feeding early in the postpartum period was an intervention in the SILC trial. The results suggest an increase in the percentage of infants breastfeeding at 4 months in low socioeconomic areas of Victoria. The study also highlights that any new mother (irrespective of birth number) requires help and reassurance. The 2014 NZ Maternity Report suggested an increase in total breastfed babies from 90.9% to 92.7% between 2008 and 2014 (at 2 weeks of age). 85.8% of babies born to women aged <20 years were breastfed at 2 weeks while 76.2% of Māori babies received breast milk. 95.2% of babies in quintile 1 (less deprived neighbourhood) were breastfed compared with 89.7% of babies in quintile 5 (more deprived neighbourhood). Between 2010 and 2014, the proportion of babies exclusively or fully breastfed at 2 weeks after birth decreased in most DHB regions apart from one where there was a slight increase (not significant) in the proportion of babies exclusively or fully breastfed. Though we record breastfeeding rates at initial feed, 48 hours, two weeks and on discharge from the LMC (between 4–6 weeks of age) the data presented in various reports is of rates at 2 weeks. It may be useful to include breastfeeding rates at 4–6 weeks to get a fuller picture. Plunket Annual Breastfeeding statistics (2015) suggest that 88% of babies receive any breast milk at 6 weeks of age decreasing to 68% at 6 months. We may have information on why breastfeeding rates are lower at 6 months of age but it is time to review our rates at 2 weeks and at time of discharge from midwifery care in the light of some decrease in rates in most DHB regions?

**Reference:** *Birth* 2016;43(4):303-12

[Abstract](#)

## Effect of supplemental donor human milk compared with preterm formula on neurodevelopment of very low-birth-weight infants at 18 months

**Authors:** O'Connor D et al.

**Summary:** This Canadian study examined the effects of supplemental donor milk compared with preterm formula in very low birthweight (VLBW) infants. 363 VLBW infants were recruited from 4 neonatal units in Ontario within 96 hours of birth and were randomised to receive either donor milk or preterm formula for 90 days (or to discharge) when mother's milk was unavailable. When the infants were assessed at 18 months of age, there were no significant between group differences in mean Bayley-III cognitive composite scores, language composite scores or motor composite scores.

**Comment:** In countries such as the USA there are 22 donor milk banks that provide donated milk for mothers who are unable to provide their own milk to their VLBW infants (<1500g). In NZ we have one donor milk bank at Canterbury DHB. Various other DHBs provide pamphlets regarding sharing of milk that includes information and Facebook sites that may help mothers access donor milk. This Canadian randomised controlled trial assessed whether supplemental donor milk improves outcomes when the mother's milk was not available. The study found that neurodevelopmental outcomes (first trial to have this as primary outcome), morbidity, and mortality at 18 months were similar in VLBW infants fed donor milk or preterm formula as a supplement to their mother's milk. It therefore does not definitively answer the question of whether donor human milk has an effect similar to that of maternal milk in improving neurodevelopmental outcomes. However, a large portion of the babies' nutritional needs in both groups came from maternal milk (58.4% in the group having donor milk and 63.3% in the group having preterm formula). Would the outcomes have been different if the donor milk was compared with preterm infant formula or with maternal milk only? Authors suggest that previous research shows a dose-dependent effect of maternal milk on neurodevelopmental outcomes so high usage of maternal milk may be responsible for similarities between groups. They further suggest that donor and maternal milk are not equivalent as donor milk is pasteurised, frozen and thawed. Pasteurisation kills live cells and affects lactoferrin. Apparently a larger trial is underway in which infants will receive a larger proportion of donor milk than in this newly reported trial.

**Reference:** *JAMA* 2016;316(18):1897-1905

[Abstract](#)

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## Maternal urinary metabolic signatures of fetal growth and associated clinical and environmental factors in the INMA study

**Authors:** Maitre L et al.

**Summary:** This analysis of data from the INMA birth cohort study characterised the maternal urinary metabolome throughout pregnancy to identify maternal metabolic signatures of fetal growth and associated clinical and environmental factors. Nuclear magnetic resonance (NMR) spectroscopy was used to characterise maternal urine samples collected in the first (n=412 and n=394, respectively, in Gipuzkoa and Sabadell cohorts) and third trimesters of gestation (n=417 and 469). Significant reproducible maternal urinary metabolic signatures of fetal growth and birthweight were identified. Maternal physical activity, coffee consumption, vitamin D intake and smoking were considered to be potential sources of the metabolic variation.

**Comment:** This comprehensive Spanish study suggests that a pregnant woman's urine could be used to help identify lifestyle interventions that help maintain a healthy birthweight for their baby. Small and large babies have a higher risk of developing type 2 diabetes and obesity in later life. NMR spectroscopy was used to identify, for the first time, a panel of 10 urinary metabolites in the 3rd trimester of pregnancy that were associated with greater fetal growth and increased birthweight. These metabolites included steroid hormones and important biological building blocks called branched-chain amino acids (BCAAs). BCAAs are essential nutrients that are vital during pregnancy as an energy source for the growing fetus. In this study, changes in BCAAs and other metabolites detected in the urine were able to explain 12% of the variation seen in birthweight, independent of other known predictors such as a parent's own weight and maternal smoking or alcohol intake. The authors suggest that a 50% increase in the mother's level of individual BCAAs equated to a 1–2.4% increase in birth weight, or 5–11 grams. When comparisons were made with the lifestyle and environmental exposures of the women, the authors found that the variability between BCAA profiles of individual mothers could be partially explained by levels of physical activity, vitamin D, coffee consumption and smoking exposure, suggesting them to be potential areas of intervention to promote a healthy birthweight. The participants from two locations in Spain differed in socio-demographic factors, with women in Gipuzkoa reported to be more educated, from a higher social class and generally healthier than women from Sabadell. This distinction allowed for useful comparisons to be made between women from different backgrounds and different geographical location. This study highlights the value that metabolic profiling of pregnant women could have in individualising a woman's pregnancy plan to improve fetal growth outcomes.

**Reference:** *BMC Medicine* 2016;14:177

[Abstract](#)

## Paternal mental health following perceived traumatic childbirth

**Authors:** Inglis C et al.

**Summary:** This Australian study explored the experiences and perceptions of fathers after childbirth trauma. 69 men responded to online qualitative questions and 7 of them were interviewed. The men felt there was a significant lack of communication between birthing teams and fathers, and they experienced a sense of marginalisation before, during, and after the traumatic childbirth. Many of the fathers reported that the traumatic birth had a negative impact on themselves and their relationships.

**Comment:** The findings from this study may not be a complete surprise to practitioners though this is only the ninth study investigating paternal mental health following traumatic birth. We have known for some time that people other than women may perceive birth as traumatic and develop post-traumatic stress disorder (PTSD). The prevalence rate of PTSD due to childbirth experience in men appears to be about 3%. White (2007) explored the phenomenon of post-traumatic stress following childbirth as NZ fathers narrated their experiences of witnessing a traumatic birth. One of the themes identified in her study was "it's about being included". This Australian study identifies the importance of being communicated with and not being marginalised. Hence it is important for practitioners to be aware of the support that fathers may need before, during and following birth. The authors in this study suggest that we prepare fathers for realistic births (a similar suggestion has been made for preparation of women), and encourage fathers to attend the 36-week appointment about birth planning so that they feel in control and not powerless. The authors also suggest that Midwifery clinical guidelines need to make explicit the requirement of the midwife to support the woman's chosen birth partner. The NZCOM Standards of Practice and Midwifery Council Competencies mention that we encourage involvement of family/whānau as defined by the woman.

**Reference:** *Midwifery* 2016;41:125-31

[Abstract](#)

## Association between childbirth attitudes and fear on birth preferences of a future generation of Australian parents

**Authors:** Hauck Y et al.

**Summary:** This study examined university students' attitudes toward childbirth. A cross-sectional online study was conducted with 654 Western Australian students attending a tertiary institution. Male and female students were eligible to participate if they were aged <40 years and did not currently have children (but intended to become parents). Analysis of the data showed that 82.0% of childbirth attitudes were shaped by family members' experiences, 64.4% by friends' experiences, and 63.5% by media (TV, YouTube, and movies). 15.6% of respondents indicated a preference for a caesarean birth, even without obstetric complications. 26.1% of students reported elevated fear; these students were twice as likely to want a caesarean birth. 23.4% of students felt confident about their knowledge of childbirth.

**Comment:** Tokophobia – fear of childbirth has been mentioned in the literature in relation to women and pregnant women having extreme fear of birth. The authors suggest that only 3 studies (all in North America) have looked at university students' attitudes towards birth. It is not surprising that the participants in the study are apprehensive about childbirth, as having your first baby is a life-changing experience. Hearing horror birth stories does not just affect those who are planning or pregnant but also the young generation that are part of family or social networks. Though TV, YouTube and movies may have a negative impact, other literature suggests that empowering images of women birthing in calm environments can inspire and reduce fear. The authors state that it is not possible to generalise the findings to all Australian adults because these university students represent an educated and affluent subset of the general population. From this online survey it is also not possible to say that students who may have indicated a fear of childbirth will be fearful when they contemplate or become pregnant in the future. However, with rising intervention rates it is important that we expose future generations to narratives that highlight the physical and psychological benefits of vaginal births and the calming and pain free qualities of endorphins released during labour and birth.

**Reference:** *Women Birth* 2016;29(6):511-17

[Abstract](#)



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