

Midwifery Research Review™

Making Education Easy

Issue 17 - 2017

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Abbreviations used in this issue

DHB = District Health Board
OR = odds ratio



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Welcome to the latest issue of Midwifery Research Review.

We bring you our selection of the best in current research from New Zealand and around the world. The areas include how a midwife's experience affects the rate of severe perineal lacerations, how NZ midwives maintain competence, the possible effects of antibiotics in the first trimester of pregnancy, managing iron deficiency anaemia, the effects of opioids on breastfeeding, the analgesic effects of maternal milk odour, a review of the impact of gestational weight gain on outcomes as well as reports of maternal and paternal antenatal and postnatal depression from the Growing Up in NZ Study.

We hope you find the papers selected for this issue of interest, and look forward to hearing your comments, feedback and suggestions.

Kind regards,

Nimisha Waller

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Does midwife experience affect the rate of severe perineal tears?

Authors: Mizrachi Y et al.

Summary: This retrospective cohort study examined whether midwife experience affects the rate of severe perineal tears. Outcomes for 15,146 women with a singleton pregnancy who underwent vaginal delivery at a single tertiary hospital in 2012–2015 were reviewed. Severe perineal tears occurred in 51 (0.33%) deliveries. The rate of severe perineal tears was higher with inexperienced midwives than with highly experienced midwives (0.5% vs 0.2%; $p=0.024$). Each additional year of experience was associated with a 4.7% decrease in the risk of a severe perineal tear ($p=0.03$).

Comment: The findings that highly experienced midwives had a lower rate of severe perineal tears would not be a surprise to many. A UK study also reported that midwives with experience of ≥ 20 years felt confident about perineal management and had better communication with women with regard to controlling their pushing at the time baby's head was crowning. A relative reduction of 60% in the rate of severe perineal tears when births were managed by highly experienced midwives compared with inexperienced midwives has been reported in this study. Apart from "hands on" technique, it is common practice within this facility to prefer delayed pushing and perform perineal massage during pushing. It is unclear whether consent is gained from women for common practices within the facility or women just know that's what would happen if they choose to birth there. Cochrane suggest that massage and warm compresses may reduce third and fourth-degree lacerations. The rate of obstetric anal sphincter injuries (OASIS) has been steadily increasing in NZ. They represent serious complications of vaginal delivery as they may lead to fecal incontinence, pelvic floor disorders, dyspareunia, chronic pain and possibly severe psychological and social problems. Various DHBs are focusing on appropriate support at time of birth by providing a second midwife as well as encouraging a "hands-on" approach to crowning of baby's head. The authors suggest highly experienced midwives may be preferred for managing births of women at very high risk for OASIS, however further research is needed to identify the exact manoeuvres used by experienced midwives that are responsible for the reduction in the incidence of perineal tears. It would be beneficial to also explore women's experiences of a "hands-on" approach and enable opportunities for new graduate midwives to work with highly experienced midwives to reduce the increasing rate of severe perineal lacerations.

Reference: *Birth* 2017;44(2):161-66

[Abstract](#)



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This years theme:
"Supporting and
strengthening
midwifery
practice through
research"

“Working towards being ready”: a grounded theory study of how practising midwives maintain their ongoing competence to practise their profession

Authors: Calvert S et al.

Summary: This NZ study investigated how midwives maintain their ongoing competence to practise. 26 midwives from across NZ were interviewed. They responded that they do engage in development that allows them to remain current in practice and provide appropriate care to women and their babies. Mandated processes that require engagement in activities aimed at demonstration of competence need to have flexibility to reflect the diversity of midwifery practice.

Comment: Most practitioners would be aware of the purpose of the Midwifery Council of NZ to protect the public by promoting competency standards and professional practice standards. Increasing women/whānau expectations, demographic and social changes, changing relationships between colleagues, new technology, a greater focus on research and evidence-based practice, and new treatments/management that treat/manage a range of challenges faced in maternity reinforce the need for practitioners involved in maternity care to maintain their competence. Competence includes combination of skills, knowledge, attitudes, values and abilities that underpin effective performance in our professional area and context of practice. This study highlights that we individually define our scope of practise and must maintain our competence to be ready to provide care to women/whānau and meet our employment and regulatory body's needs within that scope of practice. Hence what we need would be unique and specific to each one of us for the role we have chosen. If women require care outside of the scope we have chosen we are likely to refer and transfer care to other midwives. This will result in loss of some skills as we maintain or develop enhanced capability in areas directly relevant to our own practice but not in others. There appears to be a starting of recognition that we cannot be master of the entire body of midwifery knowledge just as in other professions and that to diversify is part of the development of midwifery profession. However it is important that we remain engaged in our professional activities to maintain the scope of practice we each have identified. A must read!

Reference: *Midwifery* 2017;50:9-15

[Abstract](#)

Analgesic effect of maternal human milk odor on premature neonates

Authors: Baudesson de Chanville A et al.

Summary: This randomised controlled study assessed the analgesic effect of maternal milk odour in preterm neonates. Breastfed infants born at 30–36 weeks' gestation who were less than 10 days postnatal age were randomised to a maternal milk odour group (n=16) or a control group (n=17). Those in the maternal milk odour group underwent a venipuncture with a diffuser emitting their own mother's milk odour whereas those in the control group underwent a venipuncture with an odourless diffuser. Neonates exposed to their own mother's milk odour had a significantly lower median Premature Infant Pain Profile score during venipuncture than the control group (6.3 vs 12.0; p=0.03). Maternal milk odour significantly reduced crying duration after venipuncture.

Comment: Most practitioners will be familiar with the use of oral sucrose as a pain prevention method in preterm neonates. However, a recent study has cast doubt on its efficacy. It appears that the long-term effects of repeated doses of oral sucrose are controversial and not well assessed. The safety of pharmacologic analgesic treatments has been questioned in neonates, particularly preterm neonates. Various non-pharmacologic methods have also been put forward. These methods have shown relative efficacy, especially when used in combination. It can be difficult for preterm neonates to transfer milk at the breast successfully, which is a requirement for the analgesic effect of breastfeeding to be successful. The physical maternal presence can have an effect by maternal touch or maternal odour. The olfactory stimulation in these studies was conducted using an unspecified amount of human milk on a filter paper or cotton ball. At birth, the olfactory system of neonates, including pre-terms, is more mature than their other senses and so can distinguish between different smells (including maternal milk odour) despite not having had any postnatal exposure. Maternal milk odour increases oxygenated blood flow in the orbito-frontal region to a greater extent than formula milk odour. The findings in this study appear to be similar to those of several randomised studies that have analysed the calming effect of maternal milk odour in full-term neonates that recorded crying duration, grimacing, and motor activities during and after a painful event.

Reference: *J Hum Lact* 2017;33(2):300-8

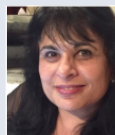
[Abstract](#)

Independent commentary by Nimisha Waller

RGON, RM, ADM, Dip. Ed, MM, DHS Candidate

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For full bio [CLICK HERE](#).



Use of antibiotics during pregnancy and risk of spontaneous abortion

Authors: Muanda F et al.

Summary: This nested case-control study within the Quebec Pregnancy Cohort examined the association between antibiotic exposure during pregnancy and risk of spontaneous abortion. Ten controls per case were randomly selected and matched by gestational age and year of pregnancy. Spontaneous abortion was defined as having a diagnosis or procedure related to spontaneous abortion before the 20th week of pregnancy (planned abortions and pregnancies exposed to fetotoxic drugs were excluded). Compared with non-exposure, use of azithromycin (adjusted OR, 1.65), clarithromycin (2.35), metronidazole (1.70), sulfonamides (2.01), tetracyclines (2.59) and quinolones (2.72) was associated with an increased risk of spontaneous abortion. Similar results were found when penicillins or cephalosporins were used as the comparator group.

Comment: It appears that use of antibiotics in pregnant women is common with some suggesting that 1 in 4 women will be prescribed an antibiotic during pregnancy. It is unclear how antibiotics increase the risk of miscarriage. Due to changes in the immune system there is a potential for infection to worsen in pregnant women. This study suggests that the risk of miscarriage is increased when certain antibiotics are taken in early pregnancy. The increased risk ranged from 65% to a more than 2-fold increase. Use of the quinolone antibiotic norfloxacin was associated with a nearly 5-fold increase in risk. However exposure to nitrofurantoin, erythromycin, penicillins and cephalosporins was not linked to increased miscarriage risk. Though the findings of this study are consistent with previous studies, they could not adjust one confounder – severity of infection. Severity of infection rather than the antibiotic used could potentially result in the woman having a miscarriage. The study did not include data on tobacco use, alcohol intake, folic acid use, and body mass index that could also play a role in miscarriage. The antibiotic exposure was based on filled prescription, so may not be considered as a reliable measure of exposure. Some antibiotics included in the study (doxycycline and minocycline) are usually used in the presence of very severe infection. So should pregnant women avoid taking antibiotics entirely during pregnancy? Bacterial infections if not treated can cause problems for the baby *in utero* so women should not avoid taking antibiotics but be advised to discuss the antibiotic choices with their practitioner. Practitioners should be aware that, in the presence of limited knowledge about the effects of antibiotics in early pregnancy, we should only prescribe if the benefits outweigh the risks. We should also consider and be aware of the safety profile of the medication we are prescribing. The study has established an association, not a causal effect. The authors suggest the results could alter treatment guidelines so it may be prudent to review present guidelines to see if any update is required.

Reference: *CMAJ* 2017;189(17):E625-E633

[Abstract](#)

The challenge of defining and treating anemia and iron deficiency in pregnancy

Authors: Calje E & Skinner J

Summary: This NZ study evaluated midwives' management of iron status in pregnancy and the postpartum period. Data on demographics, laboratory results, and documented clinical management were retrospectively collected from 21 midwives and 189 women with iron deficiency. 46% of women who had haemoglobin levels measured at booking did not have ferritin levels tested, and 86% of ferritin tests were not tested concurrently with C-reactive protein levels. Midwives prescribed iron for 48.7% of second trimester women but 47.1% of them still had low iron status before birth. Only 22.8% of women had haemoglobin levels measured postpartum.

Comment: In the absence of a national guideline the study provides an opportunity to reflect on the presence of any local guidelines and tests we may offer at booking and at 24–28 weeks' gestation to ensure that pregnant women are not iron deficient. It is estimated that 25% of pregnant women in developed countries are anaemic. In at least 50% of these women the anaemia is attributable to iron deficiency. As stated in this study no data are available for pregnant women in NZ, however it is suggested that iron deficiency anaemia (IDA) is particularly prevalent in indigenous populations such as Māori and Pacifica communities where rates of anaemias are double those of the general population. Maternal iron status during pregnancy determines prenatal and postnatal health outcomes. Mid-pregnancy IDA is associated with an increased risk of maternal haemorrhage, sepsis, low birthweight, pre-term delivery and continuing IDA during and after lactation. Maternal IDA can cause depletion of fetal iron stores. Should we be requesting C-reactive protein level with a ferritin test to ensure that the level of ferritin has not been affected by infection/inflammation? In the first instance asking the women about symptoms of inflammation or infection and repeating the ferritin blood test with consent should be considered. Various literature suggest that a raised or normal ferritin level in women with microcytic anaemia can be due to inflammation/infection or truly raised in the presence of excess body iron – in such instances it may be beneficial to consider C-reactive protein to confirm or exclude the presence of infection/inflammation. As midwives apart from guidelines and other frameworks we can also be guided by the recommended midwifery practice suggested in the NZ and Australian Midwifery textbook – a required text for midwifery students and a useful resource for midwives.

Reference: *Birth* 2017;44(2):181-90

[Abstract](#)

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The influence of intrapartum opioid use on breastfeeding experience at 6 weeks post partum

Authors: Fleet J-A et al.

Summary: This Australian study examined the impact of intrapartum opioid use on breastfeeding experience at 6 weeks postpartum. Women who received either intranasal or subcutaneous fentanyl had fewer difficulties in establishing breastfeeding by 6 weeks postpartum compared with women who received intramuscular pethidine ($p < 0.01$).

Comment: Midwives in NZ will be aware of the Medicines Amendment Act, 2013 and the Misuse of Drugs Regulation Amendments, 2014 as well as a need to complete the required education to prescribe the controlled drugs morphine and fentanyl in addition to pethidine for labour, birth and the immediate postpartum period. There is some controversy around the use of opioids in women who are breastfeeding with some believing that short-term maternal use is usually safe while others suggesting a clear risk due to delayed elimination of the drug's metabolite resulting in neuronal depression in the neonates. Pethidine has been linked to feeding difficulties for up to 6 weeks postpartum. There is no commercial preparation of fentanyl nasal spray available in NZ but it is available as a transdermal patch or an injection. Fentanyl has the advantage of providing rapid pain relief and being cleared faster than pethidine from the neonatal system without the formation of toxic metabolites. Studies of the use of fentanyl for pain relief in labour have examined the effects of intravenous (IV) administration. These studies showed that IV fentanyl produced less sedation and nausea in women than pethidine. Literature suggests that fentanyl use in labour does not contribute to long-term fetal or neonatal effects and cord bloods taken at birth showed low or undetectable fentanyl levels. This study suggests less difficulty with breastfeeding establishment when intranasal fentanyl is used than intramuscular pethidine however opioid levels in the neonate and colostrum were not measured. Mother's recollection was used to confirm difficulties with establishment of breastfeeding rather than an objective observer. It appears that the use of fentanyl in labour may be a preferable alternative to intramuscular pethidine for women who wish to breastfeed. Note: in the absence of nasal spray in NZ we use IV or intramuscular fentanyl during labour, birth and in the immediate postpartum period.

Reference: *Midwifery* 2017;50:106-9

[Abstract](#)

Association of gestational weight gain with maternal and infant outcomes

Authors: Goldstein R et al.

Summary: This systematic review and meta-analysis examined the association of gestational weight gain with maternal and infant outcomes. A search of various electronic databases identified 23 observational studies involving 1,309,136 women that were suitable for inclusion. Gestational weight gain was below or above Institute of Medicine (IOM) guidelines in 23% and 47% of pregnancies, respectively. Gestational weight gain below the recommendations was associated with a higher risk of small for gestational age (SGA) and preterm birth, and a lower risk of large for gestational age (LGA) and macrosomia; no effect was seen for caesarean deliveries. Gestational weight gain above the recommendations was associated with a lower risk of SGA and preterm birth and a higher risk of LGA, macrosomia, and caesarean delivery.

Comment: This review highlights the importance of healthy weight before, during and at the end of pregnancy and suggests that excessive or less weight gain during pregnancy can lead to adverse outcomes for mother and baby. Monitoring of pregnant women to ensure they are gaining appropriate weight varies globally as well as between practitioners. Studies have reported that up to 69% of pregnant women may not know their recommended weight gain in pregnancy. Many women feel that if gestational weight gain is important their midwife/practitioner would discuss it with them, hence it cannot be a health risk to them or their baby if their weight is not discussed and/or monitored. We know that the information is best received where the woman is provided with continuity of care. In NZ, Food and Nutrition Guidelines for Healthy Pregnant and Breastfeeding Women includes the 2009 IOM guidelines for weight gain during pregnancy. The NZ study suggests that nearly all midwives discussed nutrition and activity with women during pregnancy and the majority of midwives calculated the woman's body mass index (BMI) at pregnancy registration. Recommendations for weight gain varied dependent on the woman's BMI; midwives generally recommending lower weight-gain targets than the updated 2009 IOM guidelines. The findings from this review provide an opportunity to reflect on whether we consistently share information about BMI with women, discuss and offer weighing in pregnancy, how we document such discussions, do we have time during pregnancy and following birth to provide relevant individualised messages and support healthy lifestyles, and how comfortable do we feel talking to women whose BMI is in an overweight or obese category.

Reference: *JAMA* 2017;317(21):2207-25

[Abstract](#)

Midwifery Council of NZ

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A longitudinal study of pre-pregnancy and pregnancy risk factors associated with antenatal and postnatal symptoms of depression

Authors: Underwood L et al.

Summary: This analysis of data from the Growing Up in NZ study examined risk factors for antenatal and postnatal depression. 5301 women completed interviews during the third trimester of pregnancy and 9 months after childbirth. Depression symptoms were measured using the Edinburgh Postnatal Depression Scale. 8.5% of women had antenatal depression symptoms (ADS) only, 5% had depression symptoms at 9 months postpartum (PDS) only, and 3% had depression symptoms at both time points. Risk factors for ADS and PDS included perceived stress and Pacific or Asian ethnicity. Anxiety before and during pregnancy was a risk factor for ADS only, while a pre-pregnancy diagnosis of depression was a risk factor for PDS only. Having ADS increased the likelihood of PDS (OR, 1.5).

Comment: Available data suggest that up to 20% of women may experience depression at some point in their lives. Women are particularly vulnerable to depressive symptoms during pregnancy and up to a year after childbirth. Depression symptoms during these perinatal periods are associated with negative impacts on maternal health, pregnancy outcomes, child health and child development. The Perinatal and Maternal Mortality Review Committee report (2015) suggests suicide continues to be a leading cause of maternal death in NZ. This NZ longitudinal study included a comprehensive range of pre-pregnancy and pregnancy variables. In light of depression being higher in pregnancy, do we have screening for ADS? The New Zealand Public Health and Disability Act (Section 88) requires that midwives assess for the risk of PDS during their postnatal visits up until 6 weeks after the birth. The NZ Guidelines Group 2008 guidelines for primary care recommend caregivers ask about anxiety and depression using 3 simple questions and an additional question of whether they would like any help. Do primary care providers use these questions consistently in practice? Nationally and internationally there is variability in offering active screening for depression across the perinatal period despite the fact that there are increasing calls for including universal screening as part of best practice. Is it time for a policy that is collaborated and well co-ordinated for universal screening of emotional distress throughout the childbirth continuum? Do we need to increase not just clinicians' but women's/whānau's awareness of the risk of emotional distress during the childbirth continuum? Have we got the resources to support universal screening of not just mild to moderate ADS and PDS but also when it is severe?

Reference: *Matern Child Health J* 2017;21(4):915-31

[Abstract](#)

Paternal depression symptoms during pregnancy and after childbirth among participants in the Growing Up in New Zealand study

Authors: Underwood L et al.

Summary: This analysis of data from the Growing Up in NZ study evaluated characteristics associated with paternal depression during pregnancy and after childbirth. 3523 men were interviewed during their partner's pregnancy and 9 months after the birth of their child. Elevated antenatal paternal depression symptoms affected 2.3% of fathers and were associated with perceived stress (OR, 1.38) and fair to poor health during their partner's pregnancy (2.06). Elevated postnatal paternal depression symptoms affected 4.3% of fathers and were associated with perceived stress in pregnancy (OR, 1.12), no longer being in a relationship with the mother 9 months after childbirth (6.36), having fair to poor health at 9 months (3.29), being unemployed at 9 months (1.86), and a history of depression (2.84).

Comment: There is a perception that women are more at risk of developing postnatal depression. This study highlights that antenatal depression symptoms (ADS) and postpartum depression symptoms (PDS) affect men too. The factors that put men at risk are stress, poor health, relationship issues with the mother of their baby and unemployment. Various studies have highlighted the role a father's mental health plays in a child's development and suggest that the father's mental health may also affect the mental health of the mother and vice versa. The challenge for practitioners is identifying the fathers most likely to experience ADS and PDS as we may not have contact with them or very briefly see them during perinatal care. The universal screening of women during pregnancy and following birth of their baby is being discussed and debated however there is nothing at present offered to fathers. All studies suggest the importance of early recognition, referral and treatment due to the impact on children – how does one address that when there may be minimal or no contact with fathers? In developing countries where traditional gender roles are more strongly endorsed men may also not seek help. Assari (2016) suggests gender determines our risk of exposure to adversity, changes our vulnerability to stress and can also determine what resources we'll be able to access to cope with stress or depression. It is therefore important that if we can't talk to fathers that we do inform women about how they can recognise signs of ADS and PDS and other mental health conditions in each other and how/where to get help.

Reference: *JAMA Psychiatry* 2017;74(4):360-69

[Abstract](#)

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A mixed-method evaluation of a New Zealand based midwifery education development unit

Authors: McAra-Couper J et al.

Summary: A Midwifery Development Education Service (MDES) was established in the Birthing Unit at Middlemore Hospital in 2007. This report discussed the findings of an evaluation of the MDES that was undertaken in 2015. The MDES was found to provide valuable clinical midwifery education, bridge the gap between university-based and hospital-based education, and support a culture of teaching and learning within the hospital.

Comment: This is the first evaluation of a unique service (MDES) established in a DHB in NZ. It is worth reading the full article to have better understanding of how/why the service was established and the views of the students and staff working in the service. There is a sense of greater learning opportunity for all (students as well as the staff) on the birthing unit from MDES midwives. Any strategies that support individual learning needs, facilitate application of theory to practice and provide a greater sense of belonging in the clinical area for students are laudable. Some of the findings provide an opportunity for further reflections on students' other placements in the programme. For example, at the MDES the midwives provide a supportive environment, they understand the student's skill level, needs and level of learning, and they know how to accommodate this with hands on and theory learning. Does this happen in other placement areas and if not what do we need to do to ensure it does? What are the similarities and differences between the role of a midwife, a preceptor and an MDES midwife in supporting students learning in clinical placements? What can be done to ensure the "in-between zone" is not felt by the midwives in the MDES, and they have the opportunity to provide continuity of support to students? Should an MDES be considered for other clinical areas that have high acuity? There is a plan in future to evaluate views of Māori and Pacifica students who have been placed in MDES. Consideration should be given to explore the interaction between clinical educators/lecturers and MDES midwives, issues that create challenges such as assessments and feedback, as well as quantitative data on the number of students that are placed in MDES, their skill levels at the beginning and end of their placement and any issues of equality regarding placement in this service.

Reference: *Nurse Educ Pract* 2017;25:57-63

[Abstract](#)

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