

# Midwifery Research Review™

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Issue 14 – 2016

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### Abbreviations used in this issue

**BMI** = body mass index

**CS** = caesarean section

**MBRRACE-UK** = Mother and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK

**MOH** = Ministry of Health

**NWH** = National Women's Health

**NZCOM** = NZ College of Midwives

**MMPO** = Midwifery and Maternity Providers Organisation

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

We report NZ studies on rural maternity services, parental smoking in pregnancy, and why parents decline newborn intramuscular vitamin K prophylaxis. We also present an Australian survey of the use of pregnancy and parenting apps, an exploratory study on US obstetricians' attitudes towards home birth, a Norwegian study of elective CS in women of advanced maternal age, severe perineal trauma and birth positions in Nordic countries, acupuncture version of breech presentation in France, and response to the presence of reduced fetal movements in Sweden.

I hope you enjoy the selected studies and look forward to any feedback you may have.

Kind regards,

**Nimisha Waller**

[nimishawaller@researchreview.co.nz](mailto:nimishawaller@researchreview.co.nz)

## Rural women's perspectives of maternity services in the Midland Region of New Zealand

**Authors:** Gibbons V et al.

**Summary:** The Lead Maternity Carer (LMC) model of maternity care that was introduced in NZ in 1990 has moved the provision of rural maternity care from doctors to independent midwifery services. This study evaluated the views and experiences of rural women regarding maternity care services. 62 women were recruited from areas representing the five District Health Boards (DHBs) comprising the Midland region. Key themes that emerged from focus groups and interviews about antenatal care included access to services, the importance of safety and quality of care, the need for appropriate information at different stages, and the role of partners, family and friends in the birthing journey. Most of the women were happy with their antenatal care, but for some women the experience could have been better.

**Comment:** Midland region has a more rural population than the average for NZ as a whole which creates challenges in the provision and access to services especially maternity services. In most rural areas, primary birthing units appear to be bypassed as the demographic profile of rural NZ changes, birth rates fall and the highest fertility rate is in women aged 30–34 years. The services in rural areas of NZ have been deemed vulnerable due to becoming more centralised and a lack of sufficient midwives to provide maternity care, with some women in some areas not being able to find a midwife for 5 months. The findings of the study may not be a surprise to those practising in rural areas. The authors have made recommendations on how services could be enhanced including a flexible funding model that re-establishes the involvement of general practitioners (GPs) in maternity care as well as ongoing support of rural midwives and local birthing units. At the National Rural Health Conference earlier this year the NZCOM National Advisor suggested it was time for midwives and GPs to work together more collaboratively. Some GPs also appear to assist sole midwives in their area. However, further discussions are required with some DHBs having already started the dialogue to help ensure equitable and relevant services are planned to support women and practitioners in rural NZ.

**Reference:** *J Prim Healthcare* 2016;8(3):220-26

[Abstract](#)

### Independent commentary by Nimisha Waller

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



## Parental smoking during pregnancy: findings from the Growing Up in New Zealand cohort

**Authors:** Humphrey G et al.

**Summary:** This study analysed data from the Growing Up in New Zealand cohort to investigate patterns of exposure to tobacco smoke in pregnancy. Smoking behaviour was assessed in cycle 1 of the study (2009–2010) when all the women were pregnant. 20% of mothers reported smoking before pregnancy and 9.9% of them continued during pregnancy. Percentages were higher in younger women ( $p < 0.0001$ ), women with lower educational achievement ( $p < 0.001$ ) and Māori women ( $p < 0.001$ ). Multiparous mothers were more likely to be smokers than primiparous mothers (11% vs 8.3%). Second-hand smoke exposure was more likely in younger women (odds ratio, 3.2), Māori women (1.9), and women with unplanned pregnancies (3.4).



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**Comment:** Various literatures have suggested that tobacco is a leading global disease risk factor. The Global Adult Tobacco Survey (2008–2010) showed that in women of reproductive age, the prevalence of tobacco smoking ranged from 0.4–30.8% with half of these women being exposed to second hand smoke (SHS) in their homes. In this study, 7% of women reported being exposed to SHS, with exposure in planned pregnancy being less than that in unplanned pregnancy (3% vs 13%). When parity was examined, no difference in exposure to SHS was evident in planned or unplanned pregnancies. The rate of smoking in the general population has declined in NZ; this decline is also seen in pregnancy. 20% of women in this study reported smoking before pregnancy and 9.9% of women continued during pregnancy. The MOH Report on Maternity (2014) suggested that 14.8% of women reported smoking at first registration and 12.8% at 2 weeks after birth. Certain population groups, such as younger women (<20 years; 31.8%), women with lower educational achievements and Māori women (42% – higher than the 34% in Māori men) have higher smoking prevalence rates. The NWH Health Annual Report (2016) suggested that 75% of all mothers who smoked identified themselves as Māori or Pacific peoples. International and national literatures support that being younger, being less educated, living in high deprivation areas and pregnancy being unplanned are related with smoking during pregnancy, and smoking cessation may not be a motivator for multiparous women. Significant short and long term adverse outcomes for women and their babies from smoking and SHS have been established. The quarter 4 (April–June 2016) results of the MOH Tobacco Health Targets showed that only 5 out of 20 District Health Boards reached the target of 90% or more in offering help to stop smoking by the health care practitioner in the last 15 months. With 12.8% of women still smoking 2 weeks after the birth of their baby there is a need to continue to evaluate health targets, provide consistent information about smoking, improve cessation rates, and determine why some strategies work while others don't.

**Reference:** *NZ Med J* 2016;129(1442):60-74

[Abstract](#)

## Why do parents decline newborn intramuscular vitamin K prophylaxis?

**Authors:** Miller H et al.

**Summary:** This NZ study examined the reasons why some parents opt out of intramuscular (IM) vitamin K prophylaxis for their newborn baby. Semistructured interviews were conducted with 15 families from the Otago/Southland region who opted out of the injection. A variety of reasons emerged: parents' beliefs and values, concerns about their child's welfare, and external influencing factors (family, friends, media and health professionals). Most of the parents also raised concerns about other perinatal or childhood interventions.

**Comment:** Vitamin K Deficiency Bleeding (VKDB) though rare has potentially devastating consequences. In issue 4 of Women's Health Research Review (2014), a commentary was provided on medical and midwifery attitudes towards vitamin K prophylaxis in NZ neonates. This study is the first to examine in depth why parents may choose to opt out of the IM vitamin K injection for their baby. Parental concerns regarding IM vitamin K include pain, exposure to preservatives, high dosing, excessive interventions, and (unsubstantiated) association with childhood cancer. As practitioners we have a responsibility to ensure there is evidence that the preparations of vitamin K used (IM or oral) have a benefit in prevention of VKDB. There appears to be a link between vitamin K and immunisation, revealing that those declining newborn IM vitamin K prophylaxis are 14 times more likely to subsequently decline immunisation. Why this link exists is unclear, however the authors feel it highlights a potential opportunity to identify parents who are more likely to opt out of immunisations in order to provide them with information and counselling regarding their decision. The high rates of uptake for vitamin K prophylaxis around the world suggest that the majority of health professionals support this intervention. Data for NZ midwives also suggest this, with the majority noted to consider that it was important that babies receive a dose of vitamin K. The authors have raised numerous points that are worthy of further discussion and reflection, such as lack of consistency in language and messages in guidelines and position statements, adding a section to vitamin K consent forms regarding awareness of MEDSAFE guidelines, and the issue of decisional discretion. In addition, they state that practitioners must act in an ethically appropriate and professional manner and have conversations that have more relevance to future parental health care decision making than to the vitamin K decision. A must read!

**Reference:** *J Med Ethics* 2016;42(10):643-8

[Abstract](#)

## An Australian survey of women's use of pregnancy and parenting apps

**Authors:** Lupton D & Pedersen S

**Summary:** This survey evaluated the use of pregnancy and parenting apps by Australian women. 410 women who were pregnant or had given birth in the past 3 years completed an online survey. The use of pregnancy and parenting apps was common. Almost 75% of respondents had used  $\geq 1$  pregnancy app and half of them reported using  $\geq 1$  parenting app. Respondents found the apps useful for providing information, monitoring fetal or child development and changes in their own bodies, and providing reassurance. Many users did not actively assess the validity of the content of the apps, and did not think about security and privacy.

**Comment:** Electronic devices have become essential in everyday life. Up to 89% of Australians and 70% of New Zealanders have smartphones – an increase of 46% in 3 years in NZ! Apparently more than 1000 apps for pregnancy exist on the market. The way we consume information is changing. 94% of women use the internet to supplement information provided by their health practitioner. Literature suggests that the communication technology using mobile devices improves education, health and economics of people. The participants in this study were more highly educated than the general Australian population. For them pregnancy apps had become an integral part of the experience of pregnancy. Pregnancy apps were used more than parenting apps, possibly due to women having less time to spend on apps following the birth of their babies and their increased use of mother-baby groups and internet sites for information and support. The findings raise pertinent implications for women and practitioners. They provide an opportunity to reflect on the use of apps in pregnancy. The apps have potential to provide valid information to women/whanau leading up to, during, and after pregnancy, that will help them find a practitioner and relevant support in their locality and early access to care. However, studies suggest only 35% of women rated apps as completely or very trustworthy. The uploading of personal information about themselves and their unborn baby revealed a low level of concern about issues relating to privacy or security of personal data. Other researchers have found pregnant women and parents of infants and small children are only just beginning to realise or confront these issues. The possible lack of app regulation, data security and privacy particularly affect pregnant women or women with young children. Women may be particularly vulnerable if they come from less advantaged backgrounds, with lower levels of education or expertise in engaging with digital technologies. Have you had a conversation about the use of pregnancy/parenting apps with women/whanau and reflected on what apps you and the women/whanau use? When you use apps that require input of a woman's details how is this information protected by app developers? Do maternity services need/have a social media strategy?

**Reference:** *Women Birth* 2016;29(4):368-75

[Abstract](#)

## Obstetrician attitudes, experience, and knowledge of planned home birth

**Authors:** Leone J et al.

**Summary:** This US study evaluated obstetricians' attitudes, experiences, and knowledge about planned home birth. A survey was distributed to obstetricians in Ohio, Arizona and New Mexico; attitude and knowledge scores were calculated for each respondent. Obstetricians in all 3 States reported little experience and knowledge of planned home birth and had overall negative attitudes. Those with stronger knowledge did not differ in their attitudes from those with less knowledge. Attitude and knowledge scores in Arizona and Mexico (states with direct entry midwives) did not differ significantly from those in Ohio (no direct entry midwives). However, Ohio obstetricians responded most negatively to the attitude questions.

**Comment:** The debate about the safety of home births continues in the literature, professional policy and practice. Planned home births attended by registered practitioners have not been associated with an increased risk of adverse perinatal outcomes in large studies in North America, the UK, Europe, Australia and NZ. However, these studies have had limitations such as not being randomised controlled trials, having inadequate statistical power and an inability to exclude unplanned home births from the study sample. Though home births in the USA are rare there appears to have been an increase from the previous rate of 0.56%. The American College of Obstetricians and Gynaecologists Committee Opinion (2016) suggested the rate is 0.9%, of which approximately a quarter are unplanned or unattended. The Opinion states that women have a choice of birthplace in low risk pregnancy but must be informed of a 2-fold increased risk of neonatal death in planned home birth and a 3-fold increased risk of neonatal seizure or serious neurological dysfunction, to be able to make an informed decision. 3.4% of NZ women had a planned home birth, the highest being in Northland (7.6%) and the lowest in Counties Manukau (1.3%) according to the MOH Maternity Report (2014). The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) recommends that, as complications can develop rapidly, the use of birth centres ideally placed within or adjacent to a resourced 24-hour obstetric facility may provide timely access to life-saving services. 28.5% of Ohio obstetricians and 19.6% of Arizona and Mexico obstetricians responded to the survey (age and gender cohorts were even). The results suggest that the obstetricians who responded have limited knowledge and experience and hold very negative attitudes about planned home birth. Whether these attitudes correlate with behaviour is not possible to say. It is well known that different practitioners have different philosophies in relation to birth. Therefore do primary, secondary and tertiary services in NZ effectively link with seamless transfer of clinical responsibility between levels of maternity care, and between maternity and other health services? Do the attitudes to home births/different philosophies deter safe and timely transfer of women from home to secondary facility and/or compromise the care of women that require transfer?

**Reference:** *Birth* 2016;43(3):220-5

[Abstract](#)



## Elective cesarean section or not? Maternal age and risk of adverse outcomes at term

**Authors:** Herstad L et al.

**Summary:** This population-based registry study examined the association between maternal age and adverse outcomes after various delivery modes. 169,583 low-risk primiparas who gave birth in Norway in 1999–2009 were included. Most adverse outcomes increased with increasing maternal age although the increase in absolute risk was low. Operative deliveries increased with increasing maternal age. In women aged  $\geq 35$  years, the risk of maternal complications in operative delivery increased. Adverse neonatal outcomes increased mainly in emergency operative deliveries. Moderate blood loss was 3 times more likely in elective and emergency CS than in unassisted vaginal delivery, and twice as likely in operative vaginal delivery. Neonatal complications and low Apgar score occurred 2–3 times more often in emergency operative deliveries than in unassisted vaginal delivery.

**Comment:** Delaying childbirth until the late 30s and beyond has become a more frequent phenomenon over the past decades in developed countries. In NZ the median age of women giving birth is 30 years (MOH Report on Maternity, 2014). The NWH Annual Report (2016) suggests birth numbers have increased in mothers over 30 years of age from 35% in 1991 to 60% in 2015. 3.7% of nullipara women were  $>40$  years of age and 16% were  $>35$  years of age. This group is at increased risk due to a combination of parity and age. The study found an increase in CS rates (elective 3% and emergency 22%) as well as maternal and neonatal adverse outcomes with increasing maternal age. Various studies have reported that increased maternal age is an independent risk factor for CS. Other literature suggests that every 5-year increase in maternal age at the time of birth increases the risk of CS by 50%. In low-risk primiparous women aged 35 years and older, elective CS increased the risk of maternal blood loss (500–1500ml) from 12% in women aged 20–24 years to 18% in women aged  $>35$  years. Emergency CS increases the risk of a baby's transfer to the neonatal intensive care unit (NICU) from 5% in women aged 20–24 years to 7% in those aged  $\geq 35$  years. Comparing elective CS with planned vaginal delivery, transferral to the NICU and neonatal infection differed significantly, with most of the infants being healthy regardless of delivery mode. Other studies have found that low Apgar Scores at 5 minutes predict neonatal morbidity. The authors conclude that, in accordance with existing guidelines in Norway, they support the encouragement of planned vaginal delivery in women aged 35 years or older. The Auckland Consensus Guideline for Induction of Labour (2014) and the NWH guideline (2015) suggest induction of labour at 40 weeks' gestation for maternal age  $>40$  years. The study findings provide an opportunity to review local and national data of normal vaginal births and operative births when maternal age is  $\geq 35$  years, identify any increase in maternal and neonatal adverse outcomes, and consider the rationale for any adverse outcomes identified.

**Reference:** *BMC Pregnancy Childbirth* 2016;16:230  
[Abstract](#)

## Perineal injuries and birth positions among 2992 women with a low risk pregnancy who opted for a homebirth

**Authors:** Edqvist M et al.

**Summary:** This population-based cohort study in 4 Nordic countries examined the prevalence of perineal injuries in women who planned to give birth at home. A questionnaire was completed after birth by the attending midwife to assess medical outcomes. 2992 women who birthed spontaneously at home or after transfer to hospital were included. The prevalence of severe perineal trauma (SPT) was 0.7% and the prevalence of episiotomy was 1.0%. Flexible sacrum positions were associated with fewer episiotomies (odds ratio, 0.20) but were not associated with sutured perineal injuries or SPT.

**Comment:** The association of perineal trauma with significant short and long-term wellbeing (physical and psychological) of women is well established. SPT is defined as a third degree tear, which involves injury to the perineum involving the anal sphincter complex; or a fourth degree tear, which involves injury to the perineum involving the external, internal and epithelium of the anal sphincter. SPT is associated with instrumental delivery, the lithotomy position and oxytocin augmentation. Hence these risk factors are not present in home birth settings. Water birth (common in home births) has been associated with SPT and perineal injuries in some studies but not in others. Women who choose home births are highly motivated, multiparous, older, have high socioeconomic status, do not tend to smoke, and have normal BMI – good indicators of health. Kneeling was the most frequently used birth position of the flexible sacrum positions when looking at both primiparous and multiparous women (24.6%). Among primiparous women, the semi-recumbent position (considered to be a non-flexible sacrum position) was the most common position for birth (29.6%), followed by kneeling. Kneeling does not increase the risk for anal sphincter rupture compared to a semi-recumbent position according to various studies. The incidence of SPT in the Nordic countries (Norway, Sweden, Denmark and Iceland) varies from 2.3% in Norway to 4.2% in Denmark. The NZCOM MMPO report (2012) noted the rates of 3rd and 4th degree tears were 2.3% and 0.2%, respectively. The prevalence of SPT and episiotomy in this study did not differ considering the observed differences between the Nordic countries. The authors suggest that there is no national data available regarding the prevalence of less severe perineal injuries in Nordic countries. The Report on Maternity, The NZCOM MMPO report and the NWH Annual Report have tabled all types of perineal trauma but not reported perineal trauma in relation to birth positions. The position the woman adopts at birth is documented at the time of completing the labour and birth summary in NZ. Inclusion of such data in the reports would generate more robust reflection and discussion on the effect (if any) that position at birth has on types of perineal trauma.

**Reference:** *BMC Pregnancy Childbirth* 2016;16(1):196  
[Abstract](#)

## Acupuncture version of breech presentation

**Authors:** Sananes N et al.

**Summary:** This sham-controlled single-blind trial in France assessed the effectiveness of acupuncture for version of breech presentation. 259 patients with breech presentation at 32–34 weeks' gestation were randomised to either acupuncture with fire needling on acupoint BL67 or a sham group (controls). The primary outcome was the rate of cephalic presentations at ultrasound examination at 35–36 weeks' gestation. 49 (37.7%) fetuses in the acupuncture group compared with 37 (28.7%) in the sham group were in cephalic presentation at ultrasound presentation. After adjustment for parity, acupuncture did not increase the rate of fetal cephalic version.

**Comment:** Breech presentation occurs in around 3–4% of term pregnancies. Following publication of the Term Breech Trial in 2000, CS is a recommended practice for breech presentation. Cephalic version is therefore a key issue. External cephalic version (ECV) has been shown to reduce both non-cephalic births and CS, but the risk of complications related to this procedure remains unclear. Various literatures suggest that methods based on maternal postures are a safer way to promote fetal version, but there is insufficient evidence to support their use. Meta-analysis of studies of the efficacy of acupuncture on fetal cephalic version has pointed out heterogeneity of the studies and the results being discordant. A large study (10,000 participants) in 2010 concluded that offering acupuncture type interventions at BL67 to women with a breech fetus at 33 weeks' gestation reduced the number of breech presentations at term and the number of CS required, and was cost effective when compared to expectant management. To prevent one CS, 7 women with breech presentation at 33 weeks' gestation would need to be treated with acupuncture-type interventions on BL67. In this study, 3 sessions of acupuncture (limited by hospital setting) were provided to 259 women. 58.5% of fetuses in the acupuncture group were in cephalic position at the time of delivery versus 51.9% in the sham group. The rate of CS was 47.7% in the acupuncture group versus 54.3% in the sham group. The authors concluded that acupuncture and application of heat by fine needling on acupoint BL67 does not promote fetal cephalic version. They suggested further studies might investigate the effectiveness of other protocols of acupuncture and that randomisation should be stratified for nulliparous and parous women. In view of differing evidence and the need for further studies it may be best for practitioners to refer women to an acupuncturist for fuller discussion to ensure informed choice.

**Reference:** *Eur J Obstet Gynecol Reprod Biol* 2016;204:24-30  
[Abstract](#)

## To be taken seriously and receive rapid and adequate care – womens' requests when they consult health care for reduced fetal movements

**Authors:** Georgsson S et al.

**Summary:** This study determined what pregnant women with decreased fetal movements want to communicate to health care professionals. Questionnaires were distributed in labour wards in Stockholm to women who consulted care due to decreased fetal movements. 3555 questionnaires were completed of which 1000 were analysed for this study. Three categories were revealed about requests to health care professionals: pay attention to the woman and take her seriously; provide rapid and adequate care; and provide improved information on fetal movements. They wished to convey to others in the same situation the importance of consulting health care for check-up.

**Comment:** The findings in this study should not be a surprise to any practitioners involved in maternity care. They provide an opportunity to revisit whether the information we share with women is consistent, that maternal concern of decreased fetal movements (DFM) overrides any definition of DFM based on numbers of fetal movements, and women with a concern about DFM should be encouraged to contact their health care provider. Even in pregnancies that are deemed low risk, DFM have been shown to increase the risk of adverse outcomes, including fetal growth restriction, preterm birth and antepartum fetal deaths. International studies have identified that an inappropriate response to maternal perception of DFM is a common factor contributing to poor outcomes. The MBRRACE-UK Perinatal Confidential Enquiry (2015) highlighted suboptimal care for reduced fetal movements. When women attended care due to reduced fetal movements they could be met with lack of investigation, misinterpretation of the cardiotocography scan or appropriate risk factors not being assessed. Do we emphasise the importance of maternal awareness of fetal movements at every routine antenatal visit? Is the information we provide consistent? Inconsistent information still appears to be given e.g. women in this study mentioned that decreased movements are normal at the end of the pregnancy. The type of fetal movements may change as pregnancy advances in the third trimester, however there is no evidence to suggest that the number of fetal movements decreases as pregnancy advances or during the onset of labour. Reasons for the disparate information may be the lack of definitions of reduced fetal movements, and practitioners having different opinions about what is normal. Women with DFM who ask for advice are often informed the baby may respond with movements within 20 minutes after having something very sweet or sugary to eat, or having an icy cold drink. There is no evidence to support this advice. Fetal movements have been shown not to be altered by intravenous glucose administration, or by a recent meal. Women should be informed that not all information on the internet may be evidence based and they should not wait until the next day to seek advice.

**Reference:** *Midwifery* 2016;40:102-8

[Abstract](#)

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## Impact of inter-pregnancy BMI change on perinatal outcomes

**Authors:** McBain R et al.

**Summary:** This Australian study examined BMI change between pregnancies, and its impact on perinatal outcomes in the second pregnancy. 5371 women who had a first and second singleton delivery in 2000–2012 were included. Inter-pregnancy weight change was calculated based on the difference between BMI at the respective antenatal booking visits. Increases in BMI between pregnancies were associated with an increased risk for perinatal complications (e.g. gestational diabetes [GDA], macrosomia, or small-for-gestational age [SGA] infant), even in normal-weight women. A reduction in BMI was associated with improved perinatal outcomes in overweight/obese women.

**Comment:** The worldwide prevalence of obesity over the past decades has increased and has a significant impact on morbidity and public health consequences. In 2008, 26.2% and 23.8% of pregnant South Australian women were overweight or obese, respectively, at the 10-week booking visit. In NZ over half the women giving birth were identified as overweight or obese (28.3% and 24.8%, respectively) at first registration with their primary care provider. A further 44.0% of women had a healthy weight and 2.9% were underweight (Report on Maternity, 2014). The findings from various international studies investigating inter-pregnancy weight change on the risk of maternal and neonatal complications have been inconsistent. This study demonstrates that inter-pregnancy weight change affects women of a normal weight in their first pregnancy differently to women who are overweight/obese. Women whose BMI remained in normal weight category (25 kg/m<sup>2</sup>) even when there was an increase of 3 BMI units had an increased risk of adverse perinatal outcomes. The inter-pregnancy weight loss in overweight/obese women was associated with substantial reductions in the risk of developing GDM and SGA babies, but not hypertensive disorders of pregnancy, macrosomia or large-for-gestational age babies. The public health findings from this study require consideration. For example, if an overweight woman (BMI 27) lost 6kg (2 BMI units), she would reduce her risk of developing GDM from 8.5% to 4.9%, an absolute risk reduction of almost 50%. However, if she gained either 7kg (3 BMI units) or 12kg (5 BMI units) between pregnancies, she would increase her absolute risk to 11.8% or 13.9%, respectively. Weight gain between pregnancies is a norm not just for Australian women but also for many women globally. We need to provide information/strategies about weight control between pregnancies to reduce the risk of adverse perinatal outcomes in a subsequent pregnancy.

**Reference:** *Eur J Obstet Gynecol Reprod Biol* 2016;205:98-104

[Abstract](#)



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