ALCOHOL AND PREGNANCY – SUMMARY OF EVIDENCE

Why is alcohol use an issue during pregnancy?

Drinking alcohol during pregnancy can result in miscarriage, stillbirth and a baby[1] being born with a range of lifelong effects.[2] In the child, alcohol exposure in pregnancy can result in premature birth, brain damage, birth defects, growth restriction, developmental delay, and cognitive, social, emotional and behavioural deficits.[3] Fetal alcohol spectrum disorders (FASD) is the term used to describe the range of effects that can occur. It is estimated that between 600 and 3,000 New Zealand babies are born every year with FASD.[4]

Alcohol passes freely through the placenta and reaches concentrations in the baby that are as high as those in the mother.[5] However, the baby has limited ability to metabolise alcohol.[6] Alcohol and acetaldehyde can damage the developing baby's cells.[7] Alcohol can also impair placental blood flow to the baby, leading to hypoxia.[8,9]

Fetal alcohol spectrum disorders (FASD)

FASD is called a spectrum disorder because of the different effects and the different diagnoses within the spectrum. FASD is not a diagnostic term. It includes the diagnoses fetal alcohol syndrome (FAS), alcohol-related birth defects (ARBD) and alcohol-related neurodevelopmental disorder (ARND).

FASD is 100% preventable – it can only be caused by a woman drinking alcohol during pregnancy.

Alcohol use during pregnancy in New Zealand

In New Zealand, societal approval for regular alcohol consumption has contributed to increasing rates of risky alcohol use among women, particularly young women.[10] Risky drinking prior to pregnancy is strongly associated with drinking during pregnancy.[11]

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[1] 'Baby' or 'developing baby' is used instead of 'fetus' to align with how women think and talk about their pregnancy.
[2] O'Leary, C. (2004). Fetal alcohol syndrome: diagnosis, epidemiology, and developmental outcomes. *Journal of Paediatrics and Child Health* 40: 2-7.
[3] National Health and Medical Research Council (2009). *Australian guidelines to reduce health risks from drinking alcohol*. Commonwealth of Australia.
[4] Sellman, D. and Connor, J. (2009). *In utero* brain damage from alcohol: a preventable tragedy. *NZMJ* 122(1306): 6.
[5] Burd, L., Roberts, D., Olson, M and Odendall, H. (2007). Ethanol and the placenta: a review. *The Journal of Maternal-Fetal and Neonatal Medicine* 20(5): 361–375.
[6] Heller, M. and Burd, L. (2014). Review of ethanol dispersion, distribution, and elimination from the fetal compartment. *Birth Defects Research* (Part A) 100: 277-283.
[7] Hard, M., Einarson, T. and Koren, G. (2001). The role of acetaldehyde in pregnancy outcome after prenatal alcohol exposure. *Therapeutic Drug Monitoring* 23: 286-292.
[8] Denkins, Y., Woods, J., Whitty, J. and Hannigan, J. (2000). Effects of gestational alcohol exposure on fatty acid composition of umbilical cord serum in humans. *The American Journal of Clinical Nutrition* 71(1S): S300.
[9] Siler-Khodr, T., Yang, Y., Grayson, M., Henderson, G. and Lee, M. (2000). Effects of ethanol on thromboxane and prostacyclin production in the human placenta. *Alcohol* 21(2): 169-180.
[10] Ministry of Health (2013). *Hazardous drinking in 2011/12: Findings from the New Zealand Health Survey*. Wellington: Ministry of Health.

At least one in five (19%) New Zealand women report drinking alcohol *at some time* in their pregnancy and this rate is higher for younger women (28% for women aged 15 to 24-years-old).[12]

Approximately half of women drink alcohol in early pregnancy *before they know they are pregnant*, inadvertently exposing their developing baby to risk.[13] While most women stop or reduce their drinking when they find out they are pregnant, 28% continue to drink alcohol throughout their pregnancy and 9% report binge drinking during pregnancy.[14] Younger women are more likely to drink and binge drink in the early pregnancy period than older women.

Unplanned pregnancies are at particular risk of alcohol exposure because recognition of unplanned pregnancies tends to happen later and recognition of the risk of alcohol use tends to happen after pregnancy has been confirmed. The *Growing Up In New Zealand* study found that two out of five pregnancies in New Zealand are unplanned and that women with unplanned pregnancies are more likely to drink alcohol in the first three months of pregnancy and more likely to consume more than one drink per week, than women with planned pregnancies.[15]

Evidence of risk

A safe level of alcohol consumption during pregnancy has not been established. Harm is more likely to occur with frequent heavy drinking[16,17] however some studies have found associations between lower amounts of alcohol and a baby's brain development.[18,19,20] Research on the relationship between maternal alcohol consumption and child outcomes is complicated by multiple antenatal and childhood factors and the difficulties of obtaining accurate information on alcohol exposure.[21] The relationship between alcohol consumption and risk is one of dose response, not one where there is a threshold of consumption over which damage to the developing baby occurs.[22]

There is no known safe time to drink alcohol during pregnancy. Alcohol can affect the development of a baby's brain and central nervous system throughout pregnancy, including around the time of

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[11] Ministry of Health (2015). *Alcohol Use 2012/13: New Zealand Health Survey*. Wellington: Ministry of Health.
[12] Ibid.
[13] Parackal, S., Parackal, M. and Harraway, J. (2013). Prevalence and correlates of drinking in early pregnancy among women who stopped drinking on pregnancy recognition. *Maternal and Child Health Journal*, 17(3): 520-529.
[14] Ho, R. and Jacquemard, R, (2009). Maternal alcohol use before and during pregnancy among women in Taranaki, New Zealand. NZMJ 122(1306).
[15] Morton, S.M.B., Atatoa Carr, P.E., Bandara, D.K., Grant, C.C., Ivory, V.C., Kingi, T.R., Liang, R., Perese, L.M., Peterson, E., Pryor, J.E., Reese, E., Robinson, E.M., Schmidt, J.M., and Waldie, K.E. (2010). Growing Up in New Zealand: A longitudinal study of New Zealand children and their families. Report 1: Before we are born. Auckland: Growing Up in New Zealand.
[16] Jacobson, J. and Jacobson, S. (1999). Drinking moderately and pregnancy. *Alcohol Research and Health* 23(1): 25-30.
[17] O'Leary, C., Nassar, N., Kurinczuk J. and Bower, C. (2009). The effect of maternal alcohol consumption on fetal growth and preterm birth. BJOG 116:390-400.
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[19] Sood, B., Delaney-Black,V., Covington, C., Nordstrom-Klee, B., Ager, J., Templin, T, et al. (2001). Prenatal Alcohol Exposure and Childhood Behavior at Age 6 to 7 Years: I. Dose-Response Effect. *Pediatrics* 108(2): e34.
[20] Jaddoe, C., Bakker, R., Hofman, A., Mackenbach, J., Moll, H., Steegers, E., et al. (2007). Moderate Alcohol Consumption During Pregnancy and the Risk of Low Birth Weight and Preterm Birth. The Generation R Study. *Annals of Epidemiology* 17(10): 834-40.
[21] Sood, B., Delaney-Black,V., Covington, C., Nordstrom-Klee, B., Ager, J., Templin, T, et al. (2001). Prenatal Alcohol Exposure and Childhood Behavior at Age 6 to 7 Years: I. Dose-Response Effect. *Pediatrics* 108(2): e34.
[22] Committee on Substance Abuse and Committee on Children with Disabilities. Fetal alcohol syndrome and alcohol-related neurodevelopmental disorders. *Pediatrics* 2000;106(2 part 1): 358-61.

conception.[23] Variation in effects can be due to the baby's stage of development at the time of exposure.

Not all children exposed to alcohol during pregnancy will be affected, or affected to the same degree, and a broad range of effects is possible. The level of harm is related to the amount of alcohol consumed, the frequency of consumption and the timing of exposure.[24] The effect alcohol in pregnancy has on a developing baby is also influenced by factors such as the health and nutritional status of the mother, genetic factors, other drug use, psychological wellbeing and combinations of these factors.

Reducing alcohol use during pregnancy

A comprehensive, multi-faceted approach is required to reduce drinking during pregnancy. This includes population-based strategies, such as awareness-raising campaigns and consistent health professional advice to women, and targeted individual-level strategies, to ensure effective support and treatment for those women at greatest risk of having an alcohol-exposed pregnancy.[25]

The Ministry of Health, the Health Promotion Agency, the Royal New Zealand College of General Practitioners, the New Zealand College of Midwives and other health sector agencies support the following advice:[26]

Stop drinking alcohol if you could be pregnant, are pregnant or are trying to get pregnant. There is no known safe level of alcohol consumption during pregnancy.

The role of health professionals

All women of childbearing age, whether they are pregnant or not, should be routinely asked about alcohol use, advised on the consequences of alcohol use during pregnancy and supported to stop drinking alcohol when pregnant or planning pregnancy. Health professionals have a key role in providing this advice as well as the ideal opportunity to do so. Women want and expect health professionals to give advice, health professionals are seen to have expert knowledge of health issues, health professionals are well placed to support women in changing their drinking behavior and pregnancy is a time when women are open to making changes, including changing patterns of alcohol use.[27]

ABC Alcohol for Pregnancy

ABC Alcohol for Pregnancy provides a practical guide to help primary care health professionals address alcohol use in pregnancy. It involves the following three steps:

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[23] O'Leary, C. (2004). Fetal alcohol syndrome: diagnosis, epidemiology, and developmental outcomes. *Journal of Paediatrics and Child Health* 40: 2-7.
[24] O'Leary, C. (2005). Fetal Alcohol Syndrome. In: Developmental Disability Steering Group, editor. Management Guidelines: Developmental Disability. Melbourne: Therapeutic Guidelines Limited.
[25] Barry, K., Caetano, R., Chang, G., De Joseph, M., Miller, L., O'Connor, M., Olson, H., Floyd, R., Weber, M., DeStefano, F., Dolina, S. Leeks, K., National Task Force on Fetal Alcohol Syndrome and Fetal Alcohol Effect (2009). *Reducing alcohol-exposed pregnancies: a report of the National Task Force on Fetal Alcohol Syndrome and Fetal Alcohol Effect*. Atlanta, GA: Centers for Disease Control and Prevention.
[26] www.alcoholpregnancy.org.nz.
[27] Research New Zealand (2014). *Insights from women about drinking alcohol during pregnancy: A qualitative research report*. Wellington: Health Promotion Agency.

A - ***Ask*** *all women of childbearing age and pregnant women about their alcohol use and assess and record their alcohol use and level of risk.*

B - *Give* ***Brief advice*** *to women of childbearing age and pregnant women that it is important to stop drinking alcohol if they are pregnant or trying to get pregnant and explain why.*

C – *Refer to* ***Counselling*** *if women need more support because they are pregnant and finding it difficult to stop drinking.*

Information and resources

Alcohol Drug Helpline (0800 787 797, alcoholdrughelp.org.nz or free text adh to 234).

Alcohol and pregnancy information and resources, including information about the Health Promotion Agency's '*Don't know? Don't drink.'* campaign, available from alcoholpregnancy.org.nz.

Alcohol and Pregnancy – A practical guide for health professionals (Ministry of Health, 2010), available from health.govt.nz/system/files/documents/publications/alcohol-pregnancy-practical-guide-health-professionals.pdf.

Implementing the ABC Alcohol Approach in Primary Care (Royal New Zealand College of General Practitioners and the Health Promotion Agency, 2012), available from rnzcgp.org.nz/college-resources.

Pregnancy & Alcohol Cessation Toolkit – An education resource for health professionals (Alcohol Healthwatch and the University of Otago, 2012), available from akoaotearoa.ac.nz/projects/pact.

Information about FASD and the Fetal Alcohol Network NZ available from fan.org.nz.

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Acknowledgements

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