Understanding Prenatal Alcohol Exposure

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The development of tamariki is shaped by genes, environment, and early experiences—even before birth. Prenatal alcohol exposure (PAE) during this crucial time can cause lifelong harm. This article seeks to inform professionals and decision makers about the many factors which influence prenatal alcohol exposure, the lasting and inequitable harms arising from it, and the need for support for those affected. With this understanding we can better support all pēpi to have a healthy start.

How tamariki develop is influenced by their genes, their environment and their experiences. What happens even before they are born can affect their development and health into adulthood.[1] The tremendous growth and development happening before birth makes this a time of potential susceptibility, when alcohol causes considerable and lifelong harm.[2]

This article explores prenatal alcohol exposure (PAE). Its purpose is to inform professionals and decision makers about the many factors which influence prenatal alcohol exposure, the lasting and inequitable harms arising from it, and the need for support for those affected—so collectively we can better support all pēpi to have a healthy start.

Prenatal alcohol exposure (PAE) can have wide ranging effects.

Impacts of prenatal alcohol exposure

"Alcohol is a known teratogen that passes freely through the placenta and can have adverse effects on fetal development".[3] This means that pēpi has alcohol levels like their mother's but with only limited ability to metabolise the alcohol.[4]

Prenatal alcohol exposure (PAE) can have wide ranging effects—with the brain and central nervous system particularly sensitive leading to neurological challenges, which may be widespread or limited to specific areas, and can contribute to difficulties with learning and behaviour.[5]

For those pēpi who are exposed to alcohol, the amount varies. The most harmful pattern of alcohol exposure is binge drinking during early pregnancy, often before pregnancy awareness i.e. four or more standard drinks in one drinking session.[6] However, even lower levels of alcohol can also cause harm. Data from GUiNZ indicates that lower prenatal exposure–up to three drinks per week–can affect pēpi behaviour.[7]

Not all exposure to alcohol will result in observable harm, however there is "no known safe level of alcohol use during pregnancy."[8] Because of this many countries, including Aotearoa/New Zealand, recommend avoiding alcohol when planning a pregnancy.[9] NZ's Ministry of Health "advises that there is no known safe level of alcohol use at any stage of pregnancy."[10]

Fetal Alcohol Spectrum Disorder / Te Iho Tātai-ā-Rongo

"Fetal Alcohol Spectrum Disorder (FASD) is a diagnostic term used to describe impacts on the brain and body of individuals prenatally exposed to alcohol. FASD is a lifelong disability. Individuals with FASD will experience some degree of challenges in their daily living, and need support with motor skills, physical health, learning, memory, attention, communication, emotional regulation, and social skills to reach their full potential."[11] Everyone with FASD is unique, with their own strengths and challenges.[12]

"PAE is a risk factor for FASD, but not all exposures will result in a diagnosis of FASD."[13] It's important to note that tamariki may be adversely affected by PAE, even when they don't have an FASD diagnosis.

FASD has many impacts both for the person with FASD and their whānau[14] and alcohol "is the leading cause of non-genetic developmental disability in many countries."[15]

In response to inequities faced by Māori, some whānau and Māori health leaders have sought to reclaim naming practices and embed mātauranga Māori into the way FASD is understood. One outcome of this is the name Te Iho Tātai-ā-Rongo, gifted and confirmed at wānanga in 2023 under the leadership of Kaumātua Manu Kawana (Rangitāne, Raukawa, Te Arawa).[16]

How prevalent is FASD?

"The prevalence of FASD in New Zealand is not known and can only be estimated."[17] Many people living with the effects of PAE may not have had a formal diagnosis as access to skilled diagnosis in New Zealand is both limited and expensive.[18]

Estimates of prevalence vary depending on the method used. One conservative estimate, based on overseas rates, is 1% prevalence of FASD in Aotearoa. However, given New Zealand has higher rates of binge and hazardous drinking than many other countries, our actual prevalence of FASD is likely to be higher.[19] Other estimates suggest population rates of 3-5%, equating to between 1800-3000 tamariki born with FASD annually.[20]

"Prevalence rates vary and are higher in special populations (including children in care, international adoptees, special education, and correctional populations), however, FASD is found across socioeconomic groups, ethnicities and education levels."[21]

Drinking in Aotearoa

To understand the context of prenatal alcohol exposure, we must look at alcohol use across the wider population. Drinking alcohol is common in Aotearoa. The New Zealand Health Survey found 76% of those aged 15 years or older had consumed alcohol in the previous twelve months.[22] Rates of hazardous drinking—i.e. drinking in a way that could harm the drinker and/or others—are high, at 26% of adult drinkers.[23]

Societal norms and expectations around alcohol influence the drinking of expectant parents. Among women of child-bearing age high levels of drinking are common—this influences drinking patterns during pregnancy.[24]

Drinking patterns in pregnancy

Many women in Aotearoa drink alcohol before becoming pregnant—and for some, that drinking continues into pregnancy. The Growing Up in New

Those who are pregnant are more likely to reduce alcohol use if partners are supportive and actively involved in the pregnancy.

Zealand (GUiNZ) study found that 71% of women drank alcohol before pregnancy or before they were aware they were pregnant. Of those who drank, one third continued to drink in their first trimester, and almost one-fifth (19%) continued throughout their pregnancy.[25] A smaller group continued drinking at high levels.[26]

Unplanned pregnancies are common in Aotearoa. Estimates vary, but around half of pregnancies are thought to be unplanned[27], resulting in roughly one in four births.[28] This can mean alcohol is consumed before the pregnancy is recognised—often during the early stages when development is particularly sensitive.

Together, these patterns highlight the overlapping factors that contribute to prenatal alcohol exposure: how common alcohol use is among women prior to pregnancy, the frequency of unplanned pregnancies, and the social norms that shape drinking behaviours. Recognising these patterns help us better support whānau and reduce the likelihood of exposure for pēpi.

Factors influencing prenatal alcohol exposure

Preventing pēpi from being exposed to alcohol in utero is very complex. It is a "social issue with systemic causes."[29] Progress on this requires a sense of collective responsibility, culturally responsive initiatives, and community action to change current alcohol norms.[30] In other words, focusing on the pregnant parent's behaviour is not enough to support an alcohol-free start for pēpi. Many factors can directly or indirectly influence alcohol use during pregnancy, which often align with the social determinants of health.[31] Some of these factors are described below.

1. Social environment

There are multiple influences on alcohol consumption in pregnancy and one of these is a woman's social environment including whether and how those around her are drinking.[32]

If a woman has a partner, her abstinence or consumption will be influenced by her partner's drinking– she's more likely to drink if her partner does, particularly if they drink heavily. On the other hand, those who are pregnant are more likely to "reduce alcohol use if partners are supportive and actively involved in the pregnancy."[33] Stopping drinking in pregnancy can be difficult without support from whānau and friends.[34]

2. Health professional advice

Health professionals working with those who could be or are pregnant have an important role "to provide evidence-based, unambiguous messages about the risks of alcohol in pregnancy."[35] However, one study found that only approximately half of the pregnant women report being told by their GP to avoid alcohol in pregnancy.[36]

Many policy settings influence access to alcohol harms, including prenatal alcohol exposure.

3. Trauma

"Women globally are disproportionately affected by intimate partner and domestic violence, fewer opportunities for employment with liveable wages, inequitable parenting and other caregiving responsibilities, and other forms of gender discrimination."[37] Alcohol, as a legal and easily accessible drug, is often used in efforts to self-medicate, or make themselves feel better, even temporarily. It can be an attempt to cope with trauma, especially in the absence of accessible supports.[38] However, drinking alcohol is likely to worsen mental health and psychosocial challenges, rather than improve them.[39]

For Indigenous peoples, trauma also includes intergenerational and ongoing trauma linked to colonisation, racism, and systemic inequity.[40]

Substance use, including alcohol in pregnancy, is connected to health and social inequities, racism and trauma.[41] Therefore, reducing prenatal alcohol exposure requires both reducing sources of trauma in women's lives, and ensuring access to effective support when it does occur.

4. Policy settings

Many policy settings influence access to alcohol harms, including prenatal alcohol exposure. As Health Coalition Aotearoa have pointed out, "we can create a society where alcohol causes minimal harm to people's physical health, mental health and general wellbeing."[42]

Policy settings that could reduce alcohol harm, including harm to unborn pēpi, include:

- Restricting alcohol marketing including print and digital media, and at sporting and cultural events[43]
- Limiting opening hours and numbers of alcohol outlets[44]
- Increased taxation and pricing policies[45]
- Regulation of online alcohol purchasing and delivery[46]
- Strengthening community input regarding local licensing[47]
- Embedding Te Tiriti o Waitangi in alcohol legislation[48]
- Improved access to equitable, culturally appropriate, effective contraception as well as sexual and reproductive health care[49]

New Zealand's FASD Action Plan recommended "a major shift in societal attitudes to alcohol use overall, and specifically in pregnancy."[50]

Inequity

"Health inequities are systematic, unjust and potentially avoidable differences in health between subgroups in the population with differing levels of social advantage or disadvantage."[51] These inequities occur in many areas, including the rate at which tamariki experience prenatal alcohol exposure.

The impacts of prenatal alcohol exposure occur across all ethnic groups in Aotearoa but are not equally distributed.[52] Both historical and contemporary factors contribute to disparities between the rate at which alcohol impacts different groups.

Colonisation and its legacies, including trauma, contribute to higher rates of alcohol use and abuse among colonised indigenous peoples, including Māori in Aotearoa.[53]

The impacts of colonisation—including inequality, alienation from culture, and racism—are key drivers of the differences in alcohol harm.[54] These contribute to higher rates of drinking during pregnancy among Māori than other groups, and consequently higher estimated rates of FASD among tamariki Māori.[55]

Contemporary factors include differing exposures to alcohol outlets and to alcohol marketing. For example, there are "disproportionately more places that sell alcohol in low-income areas"[56] where higher proportions of Māori live. A study of tamariki wearing cameras found that tamariki Māori were exposed to five times the level of alcohol marketing than Pākeha children were.[57] Unequal exposure to these risk factors for alcohol use further contribute to inequities in alcohol harm.[58]

Individual differences

"There is no one presentation of FASD and different people are affected in different ways"[59]

The individual effects of prenatal alcohol exposure vary and are influenced by many prenatal and postnatal factors.[60] These factors include:

- Inadequate nutrition, which can worsen the impact of alcohol on pēpi[61]
- Other Adverse Childhood Experiences (ACEs) which can compound the effects of PAE.[62] People with FASD are more likely to experience adversity, both prenatally and postnatally further increasing their risk of poor outcomes[63]
- The presence of other co-occurring conditions, which are common among those with FASD[64]

Need for support

"With appropriate supports individuals with FASD can achieve positive healthy outcomes.[65]

"An FASD diagnosis provides families and professionals supporting families with a framework for understanding an individual's strengths and challenges."[66] Diagnosis and associated interventions are more effective the earlier they occur contributing to improved outcomes for the tamaiti with FASD and for their whānau.[67]

Conversely, delays in recognising FASD and providing the necessary supports contribute to increased challenges for the person with FASD and their whānau.[68] Difficulties and delays in accessing a FASD diagnosis are more common among indigenous peoples globally.[69]

A diagnosis of FASD requires a multidisciplinary team of professionals who consider many aspects including the individual's strengths and challenges and developmental history.[70] In Aotearoa/NZ access to such a diagnosis is limited, expensive, and not available in all areas.[71]

Despite the many challenges people with FASD may experience, as many as 80% of those affected do not meet the current criteria for health, education or disability support.[72] Only those who also have intellectual disability as well as FASD can access disability support.[73] To ensure equity, support should be based on need, and not purely on diagnosis.[74]

Research is clear that there is no known safe time, amount or type of alcohol for pēpi.

Conclusions

Tamariki are influenced by their environment, before they are born. Exposure to teratogens such as alcohol, can have significant adverse and lifelong effects. As in all areas of development, PAE impacts individual pēpi differently. However, research is clear that there is no known safe time, amount or type of alcohol for pēpi. Many guidelines, including New Zealand's Ministry of Health, reflect this.

Clear messaging reflecting the no safe time and no safe amount is important but insufficient to ensure all pēpi have an alcohol-free start to life. Many systemic factors influence whether and to what extent pēpi experience PAE. These include:

- colonisation and its ongoing impacts
- Aotearoa's drinking culture
- policy settings which make alcohol readily accessible and in ways that worsen inequity, and
- experiences of trauma, especially when effective support is not accessible

Aotearoa has many tamariki affected by PAE. However, as many are not diagnosed, they and their whānau struggle to access the needed support.

Many of those exposed to alcohol prenatally have FASD, a lifelong condition with impacts on many areas of development. While those with FASD benefit from early diagnosis and appropriate support services to meet their needs, cost and availability mean many go without. People with FASD have individual strengths alongside their challenges, however the condition is life-long.

Ensuring a healthy start for our tamariki requires collective efforts to make it more likely their early development is not impacted by exposure to alcohol.

This article replaces and updates "Drinking for Two: How alcohol in pregnancy affects the developing child," written by Norma Hayward in 2016.

Page 6 Photo Credit: Justin Latif for Communities Against Alcohol Harm.

Glossary of Māori words:

Pēpi	*baby/babies*
Tamaiti	*child*
Tamariki	*children*

Endnotes

1. Margolis & Gabard-Durnam, 2025
2. Gómez-Roig et al., 2021
3. Chu et al., 2022, p. 10
4. Lo et al., 2022; Ministry of Health, 2010
5. Chu et al., 2022
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7. Schoeps et al., 2018
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9. Akison et al., 2024; Ministry of Health, 2010
10. Ministry of Health, 2010, p. 1
11. CanFASD, 2024, p. 3
12. CanFASD, 2024
13. Akison et al., 2024, p. 11
14. Aotearoa (NZ) FASD Guidelines Development Project Team, 2024
15. Akison et al., 2024, p. 2
16. "Te Iho Tātai-ā-Rongo.," 2024
17. NZIER, 2024, p. 81
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22. Ministry of Health, 2024
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27. Hohmann-Marriott, 2018; Ministry of Health, 2019
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40. Espiner et al., 2022
41. Farahmand et al., 2020, Chung et al., 2016, and Lund et al., 2018, cited by Morton Ninomiya et al., 2023
42. Health Coalition Aotearoa, 2023, p. 5
43. Health Coalition Aotearoa, 2023; Romeo et al., 2023
44. Romeo et al., 2023
45. Health Coalition Aotearoa, 2023; Romeo et al., 2023; Rossen et al., 2018
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57. Chambers et al., 2029, cited by Alcohol Healthwatch, 2021
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59. "Te Iho Tātai-ā-Rongo.," 2024
60. Chu et al., 2022
61. Naik, Lee, Wu, Washburn, & Ramadoss, 2022
62. Aotearoa (NZ) FASD Guidelines Development Project Team, 2024
63. Flannigan et al., 2022
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https://brainwave.org.nz/article/how-stress-affects-tamariki/

A Squishy Wonder: Brain Structure & Function

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Adverse Childhood Experiences: Understanding Their Effects

https://brainwave.org.nz/article/adverse-childhood-experiences-understanding-their-effects/

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