

# Managing Alcohol and Other Drugs (AOD) in pregnancy

Hunter New England and Central Coast Primary Health Network

Tuesday 13th June

Potential conflict of interest: I have received an honorarium for two presentations on pain and opioid management from Indivior in 2023.



While I refer to pregnant 'women' throughout this paper, I recognize that not all pregnant people identify as women, nor are their intimate partners always male.

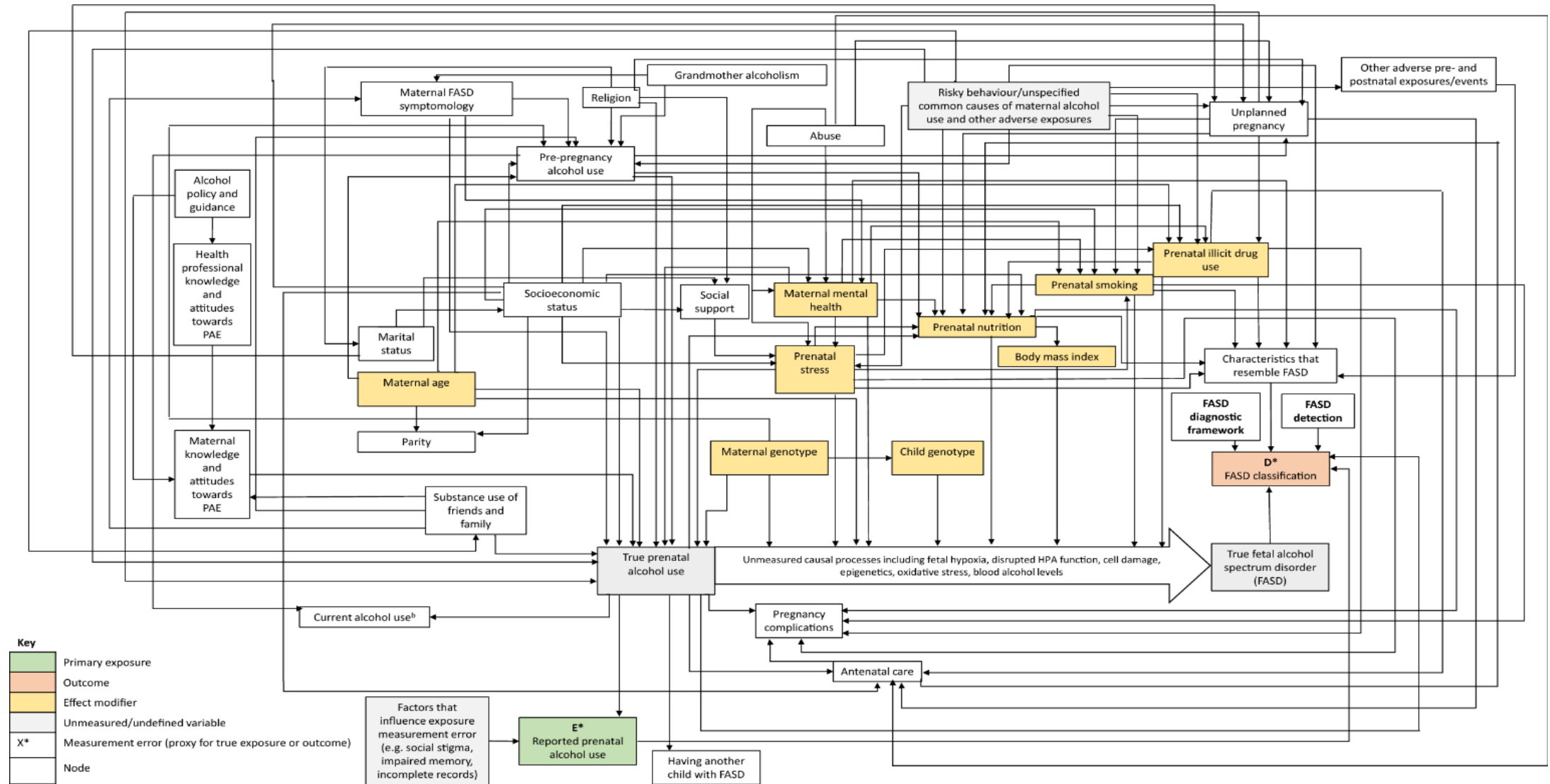
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# The causal web of foetal alcohol spectrum disorders: a review and causal diagram

McQuire 2019 European Child & Adolescent Psychiatry



Directed acyclic graph (DAG) depicting the hypothesised causal pathways to FASD. Note: evidence of prenatal alcohol exposure is required to consider a diagnosis of FASD. **a** Rural residence may be a risk factor that is particular to farming communities in South Africa, due to normative binge pattern drinking behaviour and adverse social conditions, **b** Having another child with FASD and current alcohol use are descendants of prenatal alcohol use and descendants of all factors that influence alcohol use before and during pregnancy. These connecting arcs have not been depicted in the DAG for clarity of presentation

## Overview:

Alcohol & pregnancy

Epidemiology

Problematic aspects of FASD

Ethnography

Screening

Alcohol and drug effects on pregnancy, foetus & offspring

Management:

- Education
- Brief interventions and motivational interviewing
- Pharmacotherapy
- Social or relational interventions

Lactation

The Partners' role

The offspring with Prenatal Alcohol Exposure (PAE)

Policy responses



One drink for you,  
is one drink for your baby.

Women who are pregnant or planning  
a pregnancy should not drink alcohol.

alcoholthinkagain

# Alcohol overview

Alcohol in all humans is clearly a toxin & generally unsafe.

“Alcohol is the most damaging drug in pretty much every Western country.” Professor David Nutt (Past Chief Advisor of the UK Advisory Council on the Misuse of Drugs)

Worldwide, alcohol is responsible for 3 million deaths every year and 5% of the global burden of disease (Romeo 2023 Drug Alcohol Rev)

The most recent guideline (Canadian) advises that keeping to two standard drinks or less per week, means being ‘likely to avoid alcohol-related consequences for yourself or others’.

## Drinking less is better

We now know that even a small amount of alcohol can be damaging to health.

Science is evolving, and the recommendations about alcohol use need to change.

Research shows that no amount or kind of alcohol is good for your health. It doesn't matter what kind of alcohol it is—wine, beer, cider or spirits.

Drinking alcohol, even a small amount, is damaging to everyone, regardless of age, sex, gender, ethnicity, tolerance for alcohol or lifestyle.

That's why if you drink, it's better to drink less.

### Alcohol consumption per week

Drinking alcohol has negative consequences. The more alcohol you drink per week, the more the consequences add up.



### Aim to drink less

Drinking less benefits you and others. It reduces your risk of injury and violence, and many health problems that can shorten life.

#### Here is a good way to do it

Count how many drinks you have in a week.



Set a weekly drinking target. If you're going to drink, make sure you don't exceed 2 drinks on any day.

#### Good to know

You can reduce your drinking in steps! Every drink counts: any reduction in alcohol use has benefits.

### It's time to pick a new target

What will your weekly drinking target be?



#### Tips to help you stay on target

- Stick to the limits you've set for yourself.
- Drink slowly.
- Drink lots of water.
- For every drink of alcohol, have one non-alcoholic drink.
- Choose alcohol-free or low-alcohol beverages.
- Eat before and while you're drinking.
- Have alcohol-free weeks or do alcohol-free activities.

## Alcohol and pregnancy overview



An estimated 70% Australian women over 15 consumed some alcohol over the last year (WHO 2018).

In the 2019 Australian National Drug Strategy Household Survey, half (55%) women consumed alcohol before they knew they were pregnant. This rate declined (14.5%) once they knew they were pregnant.

In an Australian metropolitan prospective pregnancy cohort study between 2008 and 2013 (n=1,403) most (60.6%) drank alcohol between conception and the recognition of pregnancy (usually at hazardous levels). After pregnancy recognition, 18% of total continued to drink, with 2/3 at a reduced level. (McCormack 2017 Alcohol Clin Exp Res)

Is the FASD risk mainly for specific classes or specific races?

About 80% Australian junior doctors used alcohol with about 1 in 6 reporting hazardous alcohol use (Wong 2023 IMJ)

A US study of FAS showed stronger association with consumption than race. It concluded apparent racial prevalence differences may reflect more intensive screening or other risk factors such as lead exposure or poor diet (Oh 2023 JMIR Public Health Surveill)

## Foetal Alcohol Syndrome

Foetal Alcohol Syndrome (FAS) was first described in three cases by Drs Smith and Jones from the University of Washington in 1973 .

The categories of the FASD spectrum are:

- Foetal Alcohol Syndrome (FAS),
- Partial FAS (pFAS),
- Alcohol Related Neurodevelopmental Disorder (ARND) & in some GLs,
- Alcohol-related Birth Defects (ARBD)



An estimated 44% of pregnancies worldwide are unplanned and globally about 10% women drink during pregnancy (Dozet 2023 Int J Ment Health Addict; Agabio 2022 Cochrane).

Of these, 1 in 67 is said to deliver a child with FAS and 1 in 13 a child with FASD. Globally, there are an estimated 14,560 new cases born each day. In Australia, the prevalence is unknown.

Diagnostic 'gold standard' requires days of multidisciplinary assessments, with an additional 3357 multidisciplinary diagnostic clinics called for just to keep up with new cases. (Oh 2023 JMIR Public Health Surveill; Burd 2019 Int J Environ Res Public Health)

**Diagnosis:** What is a diagnosis for?

Surely it must be to tailor management and improve outcomes.

So, this diagnosis seems to be ineffective. Its not happening- in general practice or in specialist D&A practice.



# Why is Foetal Alcohol Syndrome so hard to appraise?

We have strong evidence in humans that heavy PAE has serious consequences.

This is backed up by pre-clinical studies.

However:

- How do we identify drinkers or controls (given the high prevalence)?
- How do we measure and verify alcohol intake?
- How to we categorise drinking (light or heavy, steady or binging)?
- What time point(s) are we assessing?
- How about co-consumed toxicants?
- Maternal metabolism may differ eg alcohol dehydrogenase variants.
- Should the male's role be merely one of an invisible and innocent onlooker?
- Does PAE actually cause a myriad of outcomes?



## Ethnography/Sociology



Neo-liberalist policy would see self-regulation as a duty of the idealised 'good mother.'

Giving facts to 'higher risk' drinkers is not enough. We need to listen more. Qualitative research finds drinkers report:

- Mixed feelings about being pregnant
- Drinking may be social and relational
- Multiple traumas
- Stress from poverty and marginalisation

Rather than focus on blaming 'irresponsible mothers,' we need to acknowledge the broader structural context (Taylor 2023 Int J Drug Policy)





## The Screen

How do we screen?

Structured questionnaires

T-ACE (Tolerance, Annoyed, Cut down, Eye-opener)

TWEAK (Tolerance, Worried, Eye-openers, Amnesia, Kut down)

AUDIT (Alcohol Use Disorders Identification Test) and

CAGE (Cut down, Annoyed, Guilty, Eye-Opener)

### The T-ACE Questions

T How many drinks does it take to make you feel high (**T**olerance)?

A Have people **A**nnoyed you by criticizing your drinking?

C Have you ever felt you ought to **C**ut down on your drinking?

E Have you ever drunk first thing in the morning to steady your nerves or for a hangover (**E**ye-opener)?

The T-ACE is positive with a total of  $\geq 2$  points. Answering  $>2$  drinks to the Tolerance question gets two points. Answering yes to the other three questions earns one point.



What are the down-sides of screening questionnaires?



I advise this single question screener which has a strong evidence-base, “How many times in the past year have you had five or more standard drinks in a day?” (Smith 2014 D&A Dependence)

May then ask about beverage-specific quantity and frequency, as well as binge drinking.

# How do we screen?

Structured questionnaires

Biological markers

- urine toxicology
- hair toxicology
- meconium
- umbilical cord blood
- newborn testing
- Breastmilk

This seems more prevalent in the USA, where it is used for detecting illicit drugs or alcohol.



# How do we screen?

Structured questionnaires

Biological markers

A standard Drug and Alcohol history



## Vaping:

Data released by NSW Health two weeks ago, showed 16.5% of 16-24 yo's are current vapers. In 2021, this rate was 4.5%.

Ask about each of the ten major drug groups

- tobacco
- alcohol
- cannabis
- amphetamines (e.g. speed, ice)
- opioids which may be divided into prescribed and illicit
- benzos and other pills e.g. anti-psychotics
- cocaine
- trips
- "Party drugs" (stimulants e.g. Ecstasy / MDMA or GHB)
- volatiles (glue, petrol, nitrous oxide bulbs are 'nangs')
- & also now, vaping

Ask when commenced and either last used or current use.

Explore times of heaviest use or reduced use/abstinence.

Record carefully why the consumption changed for its motivational value.



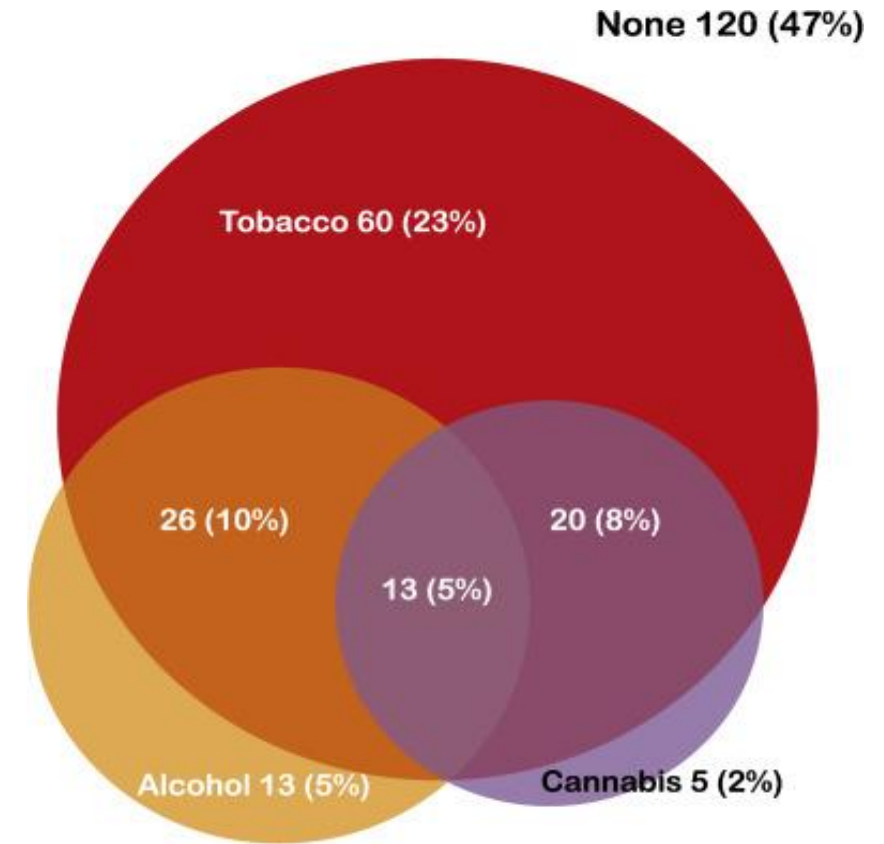
## Prenatal substance use: effects on pregnancy, the foetus and the offspring

Education about maternal risks may include:

- Psycho-social including partner violence, financial and legal
- Self-harm
- Vascular
- Infections
- Trauma
- ↓ antenatal care

Those using tobacco, alcohol or drugs are more likely to have depression, anxiety, intimate partner violence & a family history of drug use (Sujan 2023 J Addict Med)

Statistical multivariate analyses alone will not separate genetic transmission Vs teratologic effects (Bush 2020 Front Psychiatry)



The clustering of risks during pregnancy  
(Passey 2014 D&A dependence)

## Prenatal substance use: effects on pregnancy, the foetus and the offspring

Substance	Effect
Tobacco	IUGR, prematurity, ↓ BW, ↑ NICU admissions and more stays over one week
	At school: ODD, ADHD (both paternal and maternal effect), ↓ intellectual function. At 21yo obesity and ↑ pulse rate (reduced with quitting)
Cannabis	Unclear effects. ↓ memory, verbal, reasoning and perceptual skills. In teens: impulsivity, ADHD and aggression
Prescription stimulants	birth defects including gastroschisis and transverse limb deficiency
Amphetamines + meth	IUGR, prematurity, ↓ BW, neonate withdrawal symptoms, syphilis transmission
Benzodiazepines	birth defects including cerebellar, eyes, heart, gastroschisis & oesophageal atresia/stenosis
Cocaine	Placental abruption or SB. Risk of hypertension, hyperthermia, arrhythmias, or seizures
Opioids	IUGR, Miscarriage, SB, prematurity, ↓ BW, NAS (in 60%–95%), SIDS. Childhood motor and cognitive deficits; inattentiveness and hyperactivity Outcomes dramatically improved with opioid treatment programmes



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Vaping	IUGR (1 study). Another: risk ↑ generally with an association of SB with mint/menthol flavours.
Caffeine	No associations with birth defects in a large US population-based case-control study.

# Prenatal **alcohol** use: effects on pregnancy, the foetus and the offspring

Most research is in high-level drinkers or murine (pre-clinical) studies.

As with other substances we see described miscarriage\*, stillbirth, preterm birth, intrauterine growth retardation, teratogenicity and the FASD spectrum.

A review of birth defects found consistent evidence for herniation (gastroschisis & omphalocele), cleft lips &/or palates and cardiac defects.



There was little consistent evidence for skeletal or gastrointestinal defects (Dylag 2023 Children)



In 504 NZ women, no associations of PAE with age of achieving gross motor milestones. One factor, binge-drinking, was associated with delayed verbal development. (McDonald 2020 Nordic Studies on A&D)

There has been some evidence suggesting benefits of light drinking versus abstinence.

One large US study showed less pre-eclampsia and one UK study showing better cognitive outcomes! (Mamluk 2017 BMJ Open)

## Management:

- Education
- Brief interventions & motivational interviewing
- Pharmacotherapy
- Social/relational interventions- seeking support

## Education

Reflects a traditional model where the doctor has the authority, has the knowledge and delivers the facts in order to make the patient change.

This tends to be the antithesis of motivational interviewing.



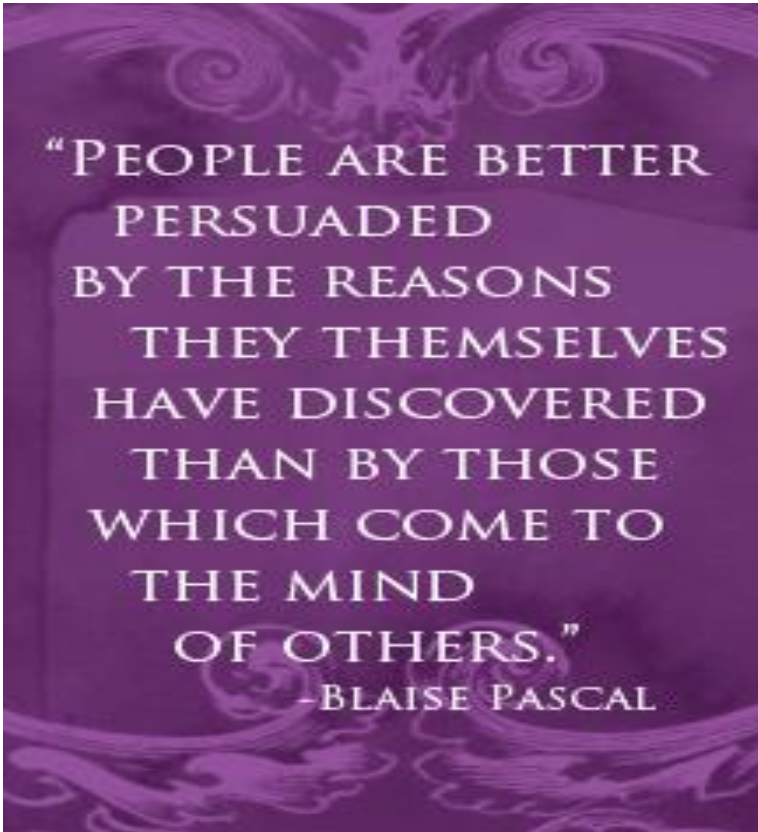
Brief Interventions These are generally regarded as a Good Thing.

Being “Brief” means that they take under one hour. They have been described to take as little as five minutes

No specific brief interventions has a clear evidence base for a recommendation. A Cochrane review found it difficult to do any metanalysis due to inconsistency of approaches and outcome measures.



# Motivational interviewing



Explore discrepancy (the gap between values/goals & actual behaviour)

Roll with resistance

Good things Vs Not-So-Good things



Scaling questions on importance, confidence or readiness eg 'On a scale of 1 to 10 how important is it to you to quit drinking?'

# Brief Interventions overall



A recent review of alcohol interventions showed:

Case management and home visits: evidence is not supportive.

Pre-conceptional interventions: their main benefit was improving contraception not reducing drinking.

A single-session intervention of motivational interviewing was ineffective

Technological approaches showed promising results in several small studies of text messaging; telephone contact and computer-based screening or counselling (Chang 2023 Alcohol Research)

# Pharmacotherapy

Unclear role for alcohol medications as most efficacy and safety tests have excluded pregnant women.

Rather than being considered contraindicated during pregnancy, there is a questioning whether a “more nuanced risk/benefit analysis” should be taken? (Agabio, 2022 Cochrane)

Some authors have called for acamprosate and naltrexone to be used, though not disulfiram as it is a known teratogen (Kelty 2021 Drugs)

Smoking: Evidence supports only NRT as safe, but often ineffective due to poor adherence (Claire 2020 Cochrane)

Opioids: strong evidence of better maternal and foetal outcomes with methadone or buprenorphine.

Breastfeeding while on either or the use of buprenorphine seems to reduce NAS. (Ordean 2017 J Obstet Gynaecol Can)

Interesting evidence is emerging on Choline supplementation in PAE pregnancies (and to age 4); a “neurocognitive rescue therapy” (Oei 2020 Addiction)





## Management:

- Education
- Brief interventions & motivational interviewing
- Pharmacotherapy
- **Social/relational interventions:** marshalling support

Some studies have described how couples negotiate their tobacco use during pregnancy. There were three relational patterns (Bottorff 2006 Nicotine & Tobacco Research)

Conflictual (where there was tension or disagreement about tobacco use)

Disengaged (reduction was considered as an individual's responsibility)

Accommodating (reduction was in their mutual interests)

We must address this as a woman's reducing or abstaining from substance use could lead to increased conflict in a relationship.



For a great self-help patient handout, see: <https://cewh.ca/wp-content/uploads/2014/09/Couples-and-Smoking.pdf>

# Postpartum/Lactation:

The prevalence of Western breastfeeding mothers consuming alcohol is high, ranging from 20% in Canada to 60% in Australia.

Alcohol exposure is impossible to control or standardize but is associated with ↓ body mass, verbal IQ scores and sleeping patterns.

Both Australian & US GLs advise it is unsafe (Perez 2023 Front Neurosci)

This time is an important opportunity for screening.

One study found over half who drank postpartum were either trying to get pregnant or were not using birth control. (Board 2023 J Addict Med)





The male  
partners'  
role:  
#MeToo /  
#HimToo /  
#UsToo

## The male partners' role: #MeToo / #HimToo / #UsToo

Psychosocial

Genetic

Epigenetic

### **Psychosocial:**

Pregnancy and a new baby are drivers of relational changes. This may trigger family violence or relationship breakdowns.

Women after breakup during pregnancy report shame, discrimination, homelessness and stress related to parenting or finances (Negussie 2023 Front Glob Womens Health)

These stressors may trigger drinking or substance use.

### **Genetic:**

Adoption and twin studies show ~50% Alcohol Use Disorder is heritable.

Confounders include maternal drinking, parental nurturing and epigenetics.





## The male partners' role: #MeToo / #HimToo / #UsToo

Psychosocial

Genetic

Epigenetic

**Paternal epigenetic studies** may address age and environment

Smoking: Congenital heart disease (more than any maternal effect), leukaemia, asthma, increased time to pregnancy, reduction semen quality (reversible).

Cannabis: IVF studies suggest ↑ implantation & live birth (↓ with paternal tobacco and alcohol).

Outside cases of subfertility, GPs rarely raise male preconception risks (Carter 2023 BMC Public Health)



# The male partners' role: #MeToo / #HimToo / #UsToo

Psychosocial

Genetic

Epigenetic alcohol effects

## Mice:

Murine studies helpful as sires can be separated after conception.

Offspring of "binging" sires have worse coordination and behaviour (Conner 2020 Alcohol Clin Exp Res)

Offspring of sires with chronic low-level alcohol show ↑ reward from alcohol.

## Humans:

Children of fathers with AUD have more behavioural problems, including ADHD. This is lessened if fathers are in remission (Finegersh 2015 Alcohol)

A Shanghai study found at 4 & 6yo, ↑ emotional, sleep and behavioural problems (Luan 2022 Scientific Reports)

Guidelines about drinking for prospective fathers are needed, and also for sperm donors.





## PAE Offspring research

Youth with FASD have:

- More adverse childhood experiences: double average US rates eg >98% of the caregivers not biological parents (Kautz-Turnbull 2022 Alcohol Clin Exp Res)
- ↑ alcohol, cannabis and cigarette use at 19yo (Dodge 2023 Alcohol Clin Exp Res)



Persons with FASD have lower life expectancy. Almost half dying of “external causes” (Oei 2020 Addiction)

FASD Mice: ↓ breathing frequency and response to hypoxia. If same in humans, this may ↑ SIDS risk. (Dubois 2013 Respir Physiol Neurobiol)



## Prevention by Policy

Can health services keep pace with proposed FASD caseloads?

As the NDIS costs blow out, we ask are researchers & experts on the same planet as our political leaders?

Public health policies regarding alcohol need to be based on evidence not 'irresponsible mother' blaming. These include:

- ↓ retail outlet density,
- ↓ days of sale,
- volumetric taxation,
- minimum retail pricing (Nelson 2013 Am J Prev Med)

Doctors should publicly support the Voice **Yes** vote to ensure future health and social policies do not ignore those with lived experience.



Any Questions?