

# Alcohol consumption in pregnancy

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The effect of alcohol consumption in pregnancy depends on the amount of alcohol consumed each time, the frequency and duration of alcohol use and maternal factors such as body composition.

Alcohol use in pregnancy is teratogenic; however, it is one of the few modifiable risk factors for poor pregnancy, perinatal, childhood and later outcomes. Up to 60% of women in Australia report drinking alcohol during pregnancy, and 80% drink alcohol in the three-month period before conception.<sup>1</sup> It is likely that rates of fetal exposure to alcohol are increasing because rising rates of risky and binge drinking behaviours have been documented in young Australian women over recent years<sup>2</sup> and almost half of all pregnancies in Australia are unplanned.<sup>1</sup>

## Effects of alcohol in pregnancy

Alcohol consumption during pregnancy has been associated with increased rates of miscarriage,<sup>3</sup> premature delivery, stillbirth and low birthweight.<sup>4</sup> Alcohol exposure *in utero* may also have devastating consequences for the unborn child including causing a range of birth defects, neurological problems and later developmental problems.

Fetal alcohol syndrome (FAS) was originally described in the children of alcoholic mothers in 1973.<sup>5</sup> Fetal alcohol spectrum disorders (FASD) is an umbrella term, coined in 2000, that encompasses the range of consequences of alcohol exposure *in utero*.<sup>6</sup> These include FAS, alcohol-related neurodevelopmental disorder (ARND) and alcohol-related birth defects.

The diagnosis of FAS requires the presence of:

- characteristic facial features of the child including short palpebral fissures, a smooth featureless philtrum and a thin upper lip
- impaired prenatal and/or postnatal growth
- structural and/or functional abnormalities of the central nervous system (e.g. small head circumference, structural brain anomaly, intellectual impairment and a range of learning disorders)
- confirmed or unknown history of alcohol exposure *in utero*.<sup>7</sup>

To diagnose ARND, children must have confirmed alcohol exposure *in utero* and one or more of the structural and/or functional neurological problems associated with FAS, but need not have the physical features required for a diagnosis of FAS. Children with ARND can have a variety of behavioural or cognitive problems that are inconsistent with the child's developmental level and cannot be explained by genetic or family



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background or environmental factors alone.<sup>7</sup>

A diagnosis of alcohol-related birth defects requires confirmed maternal alcohol exposure and at least two of the characteristic facial features of FAS. The diagnosis also requires the presence of one or more of an extensive range of cardiac, skeletal, renal, ophthalmic or minor birth defects and/or hearing loss or visual impairment.<sup>7</sup>

## Neurological consequences of alcohol exposure *in utero*

Children with FAS or ARND have similar neurological dysfunction despite the absence of birth defects in those with ARND.<sup>8</sup> A significant proportion of children with FASD have an IQ below the normal range, but it is their social, behavioural and learning problems that contribute most to their functional impairment.<sup>8</sup> These problems include difficulty with executive function, which is dependent on working memory and planning.

Many children with FASD have difficulties with concentration and overactivity, and may be diagnosed with attention deficit hyperactivity disorder. A proportion of these children will be diagnosed with internalising disorders such as anxiety and depression or externalising

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disorders such as conduct disorder.<sup>9</sup> Children with FASD can be emotionally labile, with poor impulse control and impaired social skills. They may be shy and isolated or, conversely, inappropriately familiar.

Children with FASD often have subtle language deficits and difficulty understanding abstract concepts. However, they can appear to have age-appropriate communication skills, which lead people to overestimate their understanding. Problems with numeracy are also common in these children, manifesting as difficulties with telling time, timekeeping or managing money.

### Long-term prognosis

Children with FASD are at increased risk of developing many adverse life outcomes, including disrupted schooling, contact with the criminal justice system, alcohol and drug problems, mental health problems and inappropriate sexual behaviour.<sup>10</sup> In one long-term study of children with FASD, at a mean age of 23 years only 13% had a secondary school education and 13% had ever held a job, and 70% were in dependent living situations (27% lived in institutions, 35% were in assisted accommodation and 8% lived with their parents).<sup>11</sup>

### How much alcohol in pregnancy is too much?

The effects of alcohol on the unborn child are dependent not only on the amount of alcohol consumed each time but also on the timing, frequency and duration of alcohol use during pregnancy. It is also difficult to predict the risk to an individual pregnancy because the effects of alcohol may be modified by several maternal factors, including age, body composition, genetics, nutrition, drinking history and general health.

The current evidence makes it difficult for clinicians to advise pregnant women or women planning pregnancy of a safe level of alcohol consumption. Thus the

latest version (2009) of the National Health and Medical Research Council alcohol guidelines recommends that 'the safest option for women who are pregnant or planning a pregnancy is not to drink alcohol'.<sup>12</sup>

The risk of FASD in the child is highest if the mother has a frequent, high alcohol intake, and is likely to be low if a woman has consumed only small amounts of alcohol (such as one or two drinks a week) before she knew she was pregnant or during pregnancy.<sup>12</sup> The risk of birth defects is highest when women drink in the first trimester, but the fetal brain is at risk of harm from alcohol exposure throughout the entire pregnancy.<sup>13</sup>

### Risk factors for FASD

A range of psychosocial and maternal risk factors have been associated with an increased likelihood of FASD after alcohol exposure *in utero* (see the box on this page).<sup>14-17</sup>

Increased rates of FAS reported in children from some indigenous communities may reflect variations in alcohol consumption patterns, multiple risk factors associated with low socioeconomic status and also the focus of FAS research and awareness in some of these communities. The evidence is conflicting as to whether maternal age is a risk factor for FAS.<sup>15-17</sup> There is emerging evidence that different alleles in the mother and the fetus for the alcohol dehydrogenase gene (*ADH1B*) confer either an increased risk of FAS or protection against the syndrome.<sup>14</sup>

### The role of the GP

In a Western Australian survey, 67% of GPs reported that they routinely asked about alcohol use in pregnancy but only 31% said they routinely gave information on the consequences on the fetus of alcohol use in pregnancy.<sup>18</sup>

One-fifth of GPs were able to identify the four features required for the diagnosis of FAS. More than half the GPs in the

## Factors associated with developing fetal alcohol syndrome disorders (FASD)<sup>15-17</sup>

### Risk factors with a strong association for FASD include:

- drinking alcohol through all trimesters of pregnancy
- consuming five or more drinks in one session during the pregnancy
- increasing parity, gravidity, number of children and birth order of the index child.

### Risk factors with a moderate association for FASD include:

- higher alcohol consumption when not pregnant
- binge drinking when not pregnant
- longer duration of alcohol consumption
- decreased maternal body mass index, weight, height and head circumference
- lower maternal socioeconomic status
- high alcohol consumption by immediate family members
- maternal tobacco use.

### Protective factors against developing FASD include:

- greater religious practice
- higher maternal education attainment.

survey felt that health professionals were not sufficiently aware of FAS.

GPs are ideally placed to discuss alcohol use in pregnancy with women. Most women want the best outcome for their pregnancy and research indicates that they want doctors to tell them about this issue. Some principles to guide the discussion of alcohol use in pregnancy include:

- be aware of any personal attitudes regarding alcohol and pregnancy
- use a nonjudgemental approach
- be aware of the potential psychosocial

and cultural factors associated with alcohol use

- understand that disclosing alcohol use in pregnancy may be difficult for most women
- focus on the woman as well as the child
- be honest with women and provide accurate advice.

Alcohol is consumed in all sections of society and it is important to avoid making assumptions based on culture or socio-economic status.<sup>19</sup> There are evidence-based Australian resources available on the internet to assist GPs in asking and advising women about alcohol use in pregnancy.<sup>19,20</sup>

Use of brief screening instruments such as the T-ACE, TWEAK and Alcohol Use Disorders Identification Test (AUDIT) can improve identification of pregnant women with alcohol misuse problems. However, it must be noted that these instruments were designed to identify women who may need referral to drug and alcohol services. They were not designed to identify fetuses at risk of FASD and therefore have low sensitivity for fetal harm.<sup>21</sup>

GPs are ideally placed to recognise a child at risk of FASD. Early diagnosis of FASD is associated with a significantly decreased risk of the secondary disabilities in adulthood.<sup>10</sup> Having a diagnosis may improve the child's access to appropriate educational and social services and government allowances. Diagnosing FASD also provides an opportunity for prevention of damage to the mother's future children. GPs should refer children in whom they suspect FASD to a paediatrician or child development service for further assessment. Issues such as maternal blame and guilt should be addressed sensitively during referral, assessment and diagnosis.

## Conclusion

GPs have a vital role to play in the prevention and diagnosis of FASD. Using a non-judgemental approach, they can ask and

accurately advise women about alcohol consumption in pregnancy and refer them to appropriate services. Through documentation of alcohol use in pregnancy and assessing children for features of FASD, GPs can facilitate early diagnosis, which leads to better outcomes for the child and the opportunity to prevent harm to the mother's future children. **MT**

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