

# Prevalence survey of alcohol consumption at antenatal booking in pregnancy: Comparing blood biomarker analysis to self-report

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## Background

Providing antenatal and postnatal care for women who drink alcohol in pregnancy is only possible if those at risk can be identified.

### Aims:

- To detect the prevalence of actual and self-reported alcohol consumption in pregnant women in the first trimester of pregnancy.
- To compare the utility of self-report to blood biomarker analysis.



A feasibility study by Tappin et al (2012) using the same methods, discovered that levels of CDT among a study sample of 150 pregnant women demonstrated that approximately 5% had recently engaged in hazardous alcohol use.



# Methods: Blood Biomarkers

- 600 random blood samples were analysed by Helena Biosciences from 2014 (50 were taken from each month to identify any seasonal variation)
- We tested an aliquot (0.5 mL serum/plasma) of anonymised blood for Carbohydrate Deficient Transferrin (CDT), a validated marker of chronic alcohol consumption (normalising 2-4 weeks from the start of abstinence). To see a detectable increase in CDT levels, women need to drink 50-80g of alcohol a day (i.e. 6-10 units)



# Methods: Self Report

- Frequency of alcohol consumption during pregnancy is currently based on self-report. We collected data from medical records on women's reported alcohol consumption at booking.
- We analysed and compared the self-reported alcohol consumption data with the blood biomarkers.



# Results: Blood Biomarker

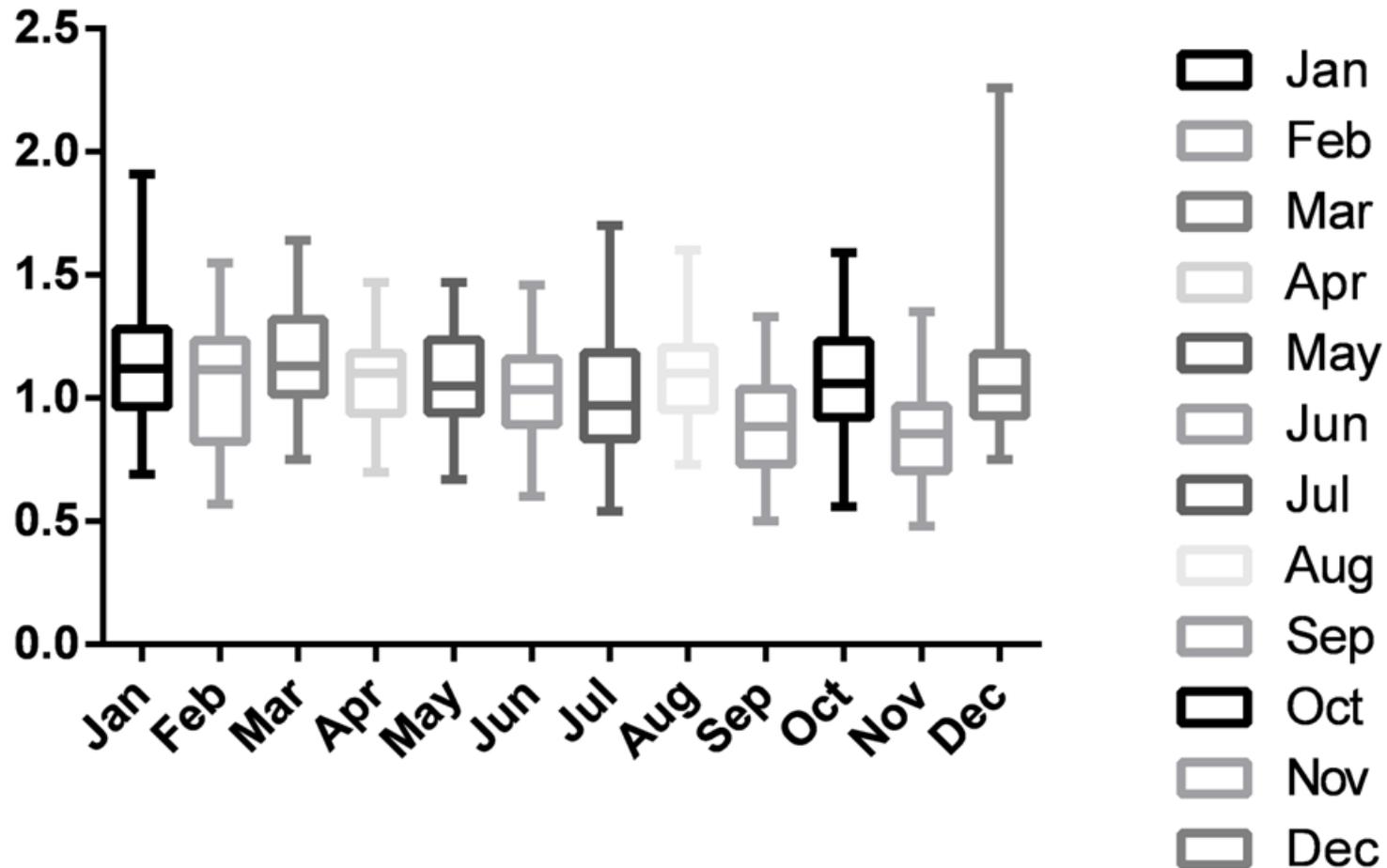
## Of the 600 samples tested:

- **1.8% (n=11)** appeared to have a transferrin genetic variant, which precluded further analysis. This can artificially increase/decrease the CDT concentration and therefore the results have not been included.
- **0.2% (n=1)** appeared to have some level of interference, it is unclear as to whether this is a transferrin genetic variant or another anomaly.
- **0.8% (n=5)** have elevated CDT above the cut off of 1.6% and may be chronic alcohol users
- **0.5% (n=3)** have very high CDT above 1.87 and are very likely to be chronic alcohol users



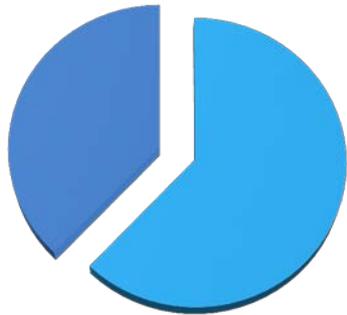
# Monthly variation

## Data 1



# Results: Self-Report

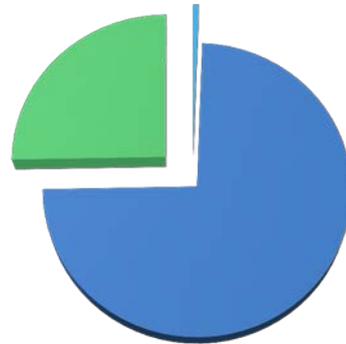
4821 Bookings



■ 2993 Recorded Reports

■ 1828 Not Recorded

2993 Documented



■ 17 (0.57%) Reported Drinking in Pregnancy

■ 2219 (74.1%) Reported drinking 2 months before pregnancy

■ 757 Reported not drinking

17 Drinkers in Pregnancy



■ 10 (58.8%) 1-3 Units per week

■ 4 (23.5%) 4-6 units per week

■ 3 (17.7%) Greater than 9 units per week

# Discussion

- The CDT and self-report findings are closely aligned to current literature estimating a 1% prevalence rate of FASD births.
- CDT is possibly not sensitive enough to pick up lower level drinking
- Additional data from other Trusts could be useful





# Conclusions

- CDT picked up slightly more women who may be drinking in pregnancy than self-report, although both methods are likely to result in under-estimates
- CDT may not detect the low level drinkers and therefore, further studies using additional blood biomarkers may be beneficial in detecting a more detailed drinking history
- Self-report may under-estimate drinking levels due to factors such as social stigma
- The extent of the under-estimate remains unclear in both cases

# Future work

- Training for healthcare workers on recording alcohol consumption
- Prospective collection of self-reported data, after training
- Use of additional blood bio-markers
- Consented collection of blood samples for alcohol analysis
- Data collection at other trusts



