

Introduction

"Of all the substances of abuse including cocaine, heroin, and marijuana, alcohol produces by far the most serious neurobehavioral effects in the fetus resulting in life-long permanent disorders of memory function, impulse control and judgment" IOM, 1996 (U.S.)

A 2017 systematic review and meta-analysis concluded that for every 13 women who drink alcohol during pregnancy, one child is born with a Fetal Alcohol Spectrum Disorder (FASD). The international SCOPE study included a CUMH cohort of over 1700 primigravida women. For the CUMH cohort, it found that four in five (82%) of first pregnancies are exposed to alcohol; nearly one in two (45%) are exposed at high-risk levels. Ireland is estimated to have the 3rd highest rate of FASD in the world at 2.8-7.4% of the population. Canadian evidence on lifetime cost of FASD suggests this results in an incremental cost to the Irish exchequer of €2.43 Billion per annum in demand for services and support.

Prenatal alcohol exposure, as a cause of brain damage, fulfils all the criteria to prove cause and effect. It is necessary to increase awareness and provide women with a consistent message that pregnancy needs to be alcohol free to prevent FASD.

Health education is insufficient. Prenatal screen for pregnancy alcohol exposure, if positive, can inform antenatal brief intervention. A positive screen provides more information to the pregnant woman to promote abstinence to reduce fetal risk.

The Department of Health's National Screening Advisory Committee reviewed a proposal to screen for alcohol in pregnancy. NASC referred the proposal for HSE attention.

There is no low risk alcohol during pregnancy, only lower risk. The risk is high.

Option appraisal

World Health Organisation STEEEP (social, technical & scientific, environmental, economic, ethical, political& policy) criteria

Option 1: status quo is not tenable for social, economic or ethical reasons.

Option 2: Screening (AUDIT C) & Brief Intervention effective but at risk drinkers only. There is no low risk drinking in pregnancy, only lesser risk.

Option 3: as above + screen urine for alcohol/ metabolite. Effectiveness, validity and reliability not tested in pregnancy. Ethical. Socially acceptable? Health services not ready & resourced? Cost effectiveness likely.

Option 4: Option 3 + enforcement for child protection—a step too far and not acceptable from the human rights, social, ethical, political and policy perspective

Method and Results

A programme to screen for prenatal alcohol exposure by antenatal urine or serum test; followed by brief intervention to promote abstinence in pregnancy, supported by patient care pathways; was evaluated against established criteria for population based cancer screening programmes.

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition 2013 is the first standard medical classification of disease to include a code for Neurodevelopmental Disorder - Prenatal alcohol exposure (ND-PAE), while Jones and Smith described fetal alcohol syndrome (FAS) in 1973.

In the absence of a patient pathway for FASD diagnosis in Ireland, to assess the size of the problem in Ireland an examination of neurodevelopmental disorder gross indicator data was undertaken. The CAMHS referral rate / 1000 population, the National Disability Authority 2016 profile of school leavers seeking a Rehabilitative Training place (RT) or day service place, and Department of Education special education and SNA support provision confirm the size of the problem. Application of international estimate derives an estimate of the annual number of cases of FASD born in Ireland.

Results

Screening for alcohol in pregnancy by National Cancer Forum Screening criteria: population based screening programme

Parameter	Criterion	Assessment	Meets criterion
Condition: Prenatal Alcohol Exposure	Important health problem	Determinant of public health; personal (FASD) & societal	Yes
	Epidemiology and natural history understood	Risk 1: 67 Only known cause of Fetal Alcohol Spectrum Disorders	Yes
	All cost-effective primary prevention interventions implemented	Public Health Alcohol Act Hidden Harm strategic statement and practice guide	No Yes
Test: Urine test for alcohol/ metabolite	Simple, safe, precise, validated	*Validation needed in pregnancy	Yes*
	Expected test values known	Not applicable Any positive result	Yes
	Acceptable	Not known	No
	Protocol for investigation and follow-up	Services for women are inadequate. Patient information leaflet and for significant others	No Yes
Treatment: Abstinence for pregnancy	Effective treatment or intervention	S&BI – effective in at risk drinker Parent child assistance programmes	Yes Yes
	Agreed evidence-based policies	Ireland_SAOR Initiative	Yes
	All treatment optimised	Alcohol Liaison Midwives	No
Screening programme: Evidence of effectiveness	Opportunity cost	Versus cost of child with FASD (Canadian Health Economic Assessment)	Yes
	RCT evidence of effectiveness	RCT not ethical Early adopters Vs. Late adopters Child outcomes pre- and post- intervention	No
	Acceptable	Women want to know	Yes
	Benefit outweighs harm	Prevention of FASD Versus harm to women	Yes
	Programme quality assured	Yes To do	Yes
	Adequate resources	Released through prevention of FASD cases	Yes
All other options considered	Screening & Brief Intervention Education Legislation (Child Care and Protection)	Yes	

Discussion

The population alcohol per capita (APC) directly predicts the rate of alcohol harm, both chronic and acute alcohol harm in the population, including the rate of occurrence of FASD. Alcohol intake shows a dose response relationship to harm. Population based public health interventions to reduce APC will reduce harm from alcohol, including a reduction in the number of children born with FASD. Reduction of population APC is a primary public health imperative.

Screening and brief intervention (S&BI) is an effective public health intervention with general application to reduce alcohol consumption and harm, including FASD. Pregnancy is an opportune time for alcohol S&BI. Many screening tests apply to all pregnant women. Screening tests aim to find out if the woman or her baby are at a low or high risk of having certain health problems. S&BI for alcohol is indicated in pregnancy as the consumption of alcohol, resulting in an alcohol exposed pregnancy, poses a high risk to the baby. A baseline and thereafter annual audit of pregnancy alcohol exposure, based on analysis of routinely collected MN-CMS health information, could evaluate alcohol S&BI outcome.

Conclusions

Pregnancy needs to be alcohol free to prevent FASD. Women are health aware during pregnancy. The proposed screening is additional to population preventative measures to reduce alcohol consumption and harm. The risk of harm from alcohol is particularly high during pregnancy warranting special additional attention.

Screening for alcohol in pregnancy assessed by National Cancer Forum Screening criteria supports institution of a population based screening programme.

Application of the World Health Organisation STEEEP (social, technical & scientific, environmental, economic, ethical, political & policy) criteria for next steps option appraisal can inform policy decisions.

Healthy Ireland: Making Every Contact Count (MECC)

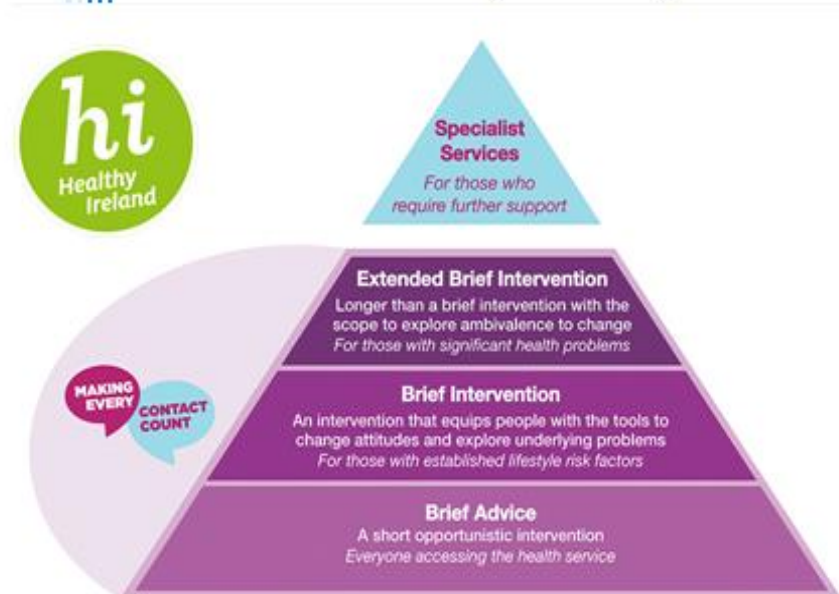


Figure 1. Ireland's Make Every Contact Count.

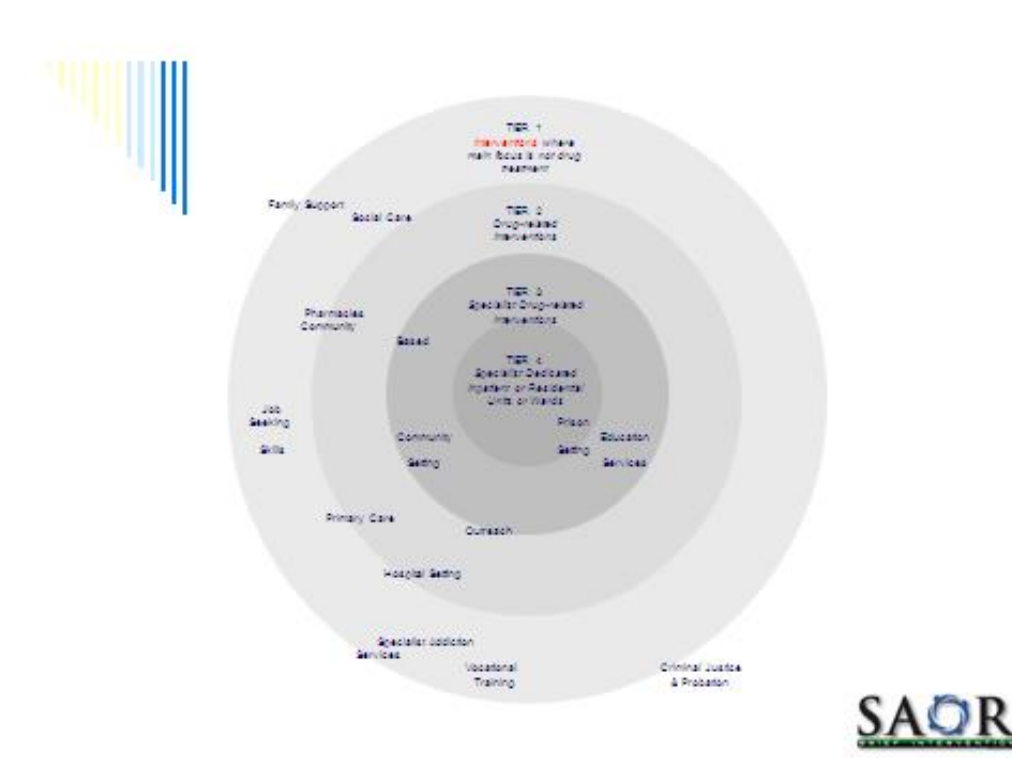


Figure 2. SAOR© (Support, Ask & Assess, Offer Assistance & Referral)

Contact

Dr Mary T O'Mahony, Consultant in Public Health Medicine, HSE-SW Ireland
Department of Public Health
St Finbarr's Hospital, Block 8 Floor 2
Douglas Road, Cork, Ireland T12 XH60
maryt.omahony@hse.ie

References

- <http://www.askaboutalcohol.ie/health/alcohol-and-pregnancy/>
- Ireland, Health Service Executive. 2006. A strategy for Cancer Control in Ireland (pp68). See p34. <https://www.screeningservice.ie/publications/CancerControlStrategy2006.pdf>
- Popova S, Lange S, Probst C, Gmel G, Rehm J. Estimation of national, regional, and global prevalence of alcohol use during pregnancy and fetal alcohol syndrome: a systematic review and meta-analysis. *Lancet Glob Health* 2017; published online Jan 12. [http://dx.doi.org/10.1016/S2214-109X\(17\)30021-9](http://dx.doi.org/10.1016/S2214-109X(17)30021-9)
- Lange S, Shield K, Koren G, et al. A comparison of the prevalence of prenatal alcohol exposure obtained via maternal self-reports versus meconium testing: a systematic literature review and meta-analysis. *BMC Pregnancy Childbirth* 2014;14:127.
- McCarthy FP, O'Keefe LM, Khashan AS, North RA, Poston L, McCowan LME, Baker PN, Dekker GA, Roberts CT, Walker JJ, and Kenny LC. Association between Maternal Alcohol Consumption in Early Pregnancy and Pregnancy Outcomes. *Obstet Gynecol* 2013; 0:1–8. ISSN: 0029-7844/13
- Ireland, Health Service Executive. 2018. Making Every Contact Count <https://www.hse.ie/eng/about/who/healthwellbeing/making-every-contact-count/>
- Ireland, Health Service Executive. 2017. SAOR© Training in Screening and Brief Intervention for Alcohol and Substance Use. <https://www.hse.ie/eng/about/who/primarycare/socialinclusion/homelessness-and-addiction/alcohol-and-substance-use-saor/>
- Popova S, Lange S, Burd L, Rehm J. The Economic Burden of Fetal Alcohol Spectrum Disorder in Canada in 2013. *Alcohol Alcohol*. 2016 May;51(3):367-75. doi: 10.1093/alcal/agv117. Epub 2015 Oct 21. PMID: 26493100.