

Alcohol and Fetal Alcohol Spectrum Disorders

Clinical Associate Professor
Raewyn Mutch



Proudly supported by the people of Western Australia through Channel 7's Teletthon

Percentage of Global Disability Adjusted Life Years (total: 1.53 billion)

<ol style="list-style-type: none"> 1. Childhood underweight 2. Unsafe sex 3. Alcohol use 4. Unsafe water, sanitation, hygiene 5. High blood pressure 6. Tobacco use 7. Suboptimal breastfeeding 8. High blood glucose 9. Indoor smoke from solid fuels 10. Overweight and obesity 11. Physical inactivity 12. High cholesterol 13. Occupational risks 14. Vitamin A deficiency 15. Iron deficiency 16. Low fruit and vegetable intake 17. Zinc deficiency 18. Illicit drugs 19. Unmet contraceptive need 	<p>Conservative estimates:</p> <ul style="list-style-type: none"> 3.2% of the global deaths 4.0% of the global DALYs. <p>unintentional injuries contributed most to alcohol-attributable mortality burden</p> <p>neuropsychiatric diseases contributed most to alcohol-attributable disease burden</p>
---	--

Alcohol as a Risk Factor for Global Burden of Disease
Rehm K¹, Patra K¹, Monteiro M¹, Geetha C¹, Graham K^{2,3}, Rehm K¹, Samtani C^{1,4}, Jernigan D⁵, ¹Alcohol Research Institute, Johns, Southampton; ²Center for Addictions Research, Health, Toronto, Ont., Canada; ³University of Toronto, Toronto, Ont., Canada; ⁴Center for Health Services Research and Policy, University of Toronto, Toronto, Ont., Canada; ⁵Management of Substance Dependence, World Health Organization (WHO), Geneva, Switzerland; ⁶Research Institute for Alcohol Problems and Other Drug Problems, Tampere, Finland; ⁷University of Western Ontario, London, Ont., Canada; ⁸University of Sheffield, Sheffield, UK, USA
and Health Policy Institute, Georgetown University, Washington, D.C., USA
doi:10.1371/journal.pone.0121222



Australia clearly has a drinking problem

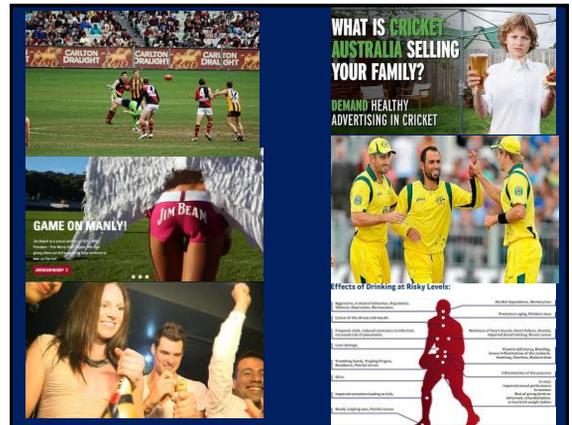
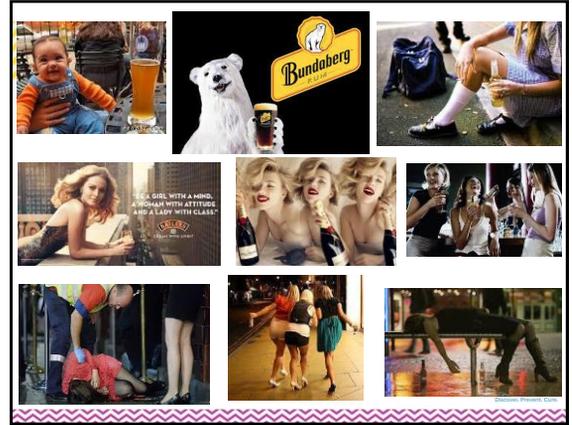
- 20% of Australians drink at risky levels for long term harm > 2 std drinks per day (1)
- 40% of Australians drink at risky levels for short term harm > 4 drinks during a single drinking occasion (1)
- The cost to the community of alcohol consumption in Australia was estimated to be \$15.3 billion in 2004/05 (2)

1. (ARHW), 2.(Collins and Lapsley 2008)



Throughout the Life course



There is an association between alcohol advertising exposure and alcohol expectancies

- beliefs about the effects of alcohol
 - (Lipsitz et al. 1993; Stacy et al. 2004)
- drinking intentions
 - (Grube and Wallack 1994; Kelly and Edwards 1998)
- current or future drinking
 - (Casswell and Zhang 1998; Wyllie et al. 1998)

17.4% students aged 12-17 years are current drinkers

- Involvement with alcohol increased with age
 - 8% of 13-year-olds
 - 37% of 17-year-olds.
- All older students, lower proportion drinking > 4 std drinks on any one occasion
 - 2005 (23%)
 - 2008 (18%)
 - 2011 (16%)

Current drinkers

- Greater than 1/3rd (37.0%) drank at risky levels
> 4 std drinks *on any one occasion*
- Average no., of std drinks *on any one occasion*
7.6 drinks by males
5.6 by females
- 45.1% of 16-17 year olds
"intend to get drunk"

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Youth: overall use of alcohol has declined-risky drinking continued

Overall use of alcohol has been declining for the past six years

86% in 2005 to 74% in 2011 ~ever consumed alcohol

"drinking patterns of adolescents in the final years of secondary school can be predictive of their drinking levels in the early years of adulthood"

http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/Publishing.nsf/content/BCBF682C638E1202CA2571C0002081502516/NationalDrugStrategy_Report_FINAL_ASA04_7.12.pdf

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Fetal Alcohol Spectrum Disorders

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Proudly supported by the
people of Western Australia
through Channel 7's Telethon

"Of all the substances of abuse,
including cocaine, heroin, and marijuana,
alcohol produces by far the most serious
neurobehavioral effects in the fetus."

IOM Report to Congress, 1996



In-utero exposure to alcohol

- Almost 50% of pregnancies are unplanned
- "Normal" Rates of drinking among a percentage of women is at a binge level
- Aboriginal women drink less than Non-Aboriginal women
- Asking about alcohol use difficult ~ stigma

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Alcohol is a teratogen - interrupts or alters
the normal development of a fetus,
including the development of the brain or
other major organs



TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Animal Studies

- Dr K Sulik and team, University of North Carolina
- *Limitations of animal studies*

TELETHON KIDS INSTITUTE
Diagnosis, Prevention, Cure

How much alcohol?

- We don't know how much alcohol, **if any**, is safe to drink during pregnancy
- Evidence: risk of harm to the fetus is greater the more alcohol the mother consumes; binge drinking is harmful
- Not all children exposed to alcohol during pregnancy will be affected or affected to the same degree
- The level of risk to the fetus is hard to predict
 - – broad range of effects are possible

TELETHON KIDS INSTITUTE
Diagnosis, Prevention, Cure

How much alcohol?

- Timing (gestation) When during the development
- Frequency (throughout pregnancy) How often was there exposure
- Quantity (*at each exposure*) How much alcohol at each exposure

TELETHON KIDS INSTITUTE
Diagnosis, Prevention, Cure

Example of dose and timing

- 10% random sample live births 1995-1996
 - 61% follow-up at 8 years
 - Postpartum alcohol questionnaire (+3m)
 - CBCL
- Outcomes
 - High level alcohol 1st trimester
 - Anxiety/depression (OR 2.82), somatic complaints (OR 2.74)
 - Moderate levels of alcohol
 - Anxiety/depression (OR 2.24)
- O'Leary et al. Evidence of a complex association between dose, pattern and timing of prenatal alcohol exposure and child behavioral problems. *ADDICTION* 105, 74-85

TELETHON KIDS INSTITUTE
Diagnosis, Prevention, Cure

Fetal Alcohol Spectrum Disorders

- Fetal Alcohol Syndrome
- Partial Fetal Alcohol Syndrome
- Neuro-developmental disorders

TELETHON KIDS INSTITUTE
Diagnosis, Prevention, Cure

Clinical Features of Fetal Alcohol Syndrome (FAS)

TELETHON KIDS INSTITUTE
Diagnosis, Prevention, Cure

Embryology-time frame for the Brain

3 weeks 4 weeks 5 weeks
7 weeks 11 weeks 4 months
6 months 8 months Newborn

TELETHON KIDS INSTITUTE
Diagnosis. Prevention. Cure.

Palpebral Fissure

endocanthion exocanthion
1.91 cm

TELETHON KIDS INSTITUTE
Diagnosis. Prevention. Cure.

Cranston, M. E., A. A. Mhanni, et al. (2009). "Concordance of three methods for palpebral fissure length measurement in the assessment of fetal alcohol spectrum disorder." Canadian Journal of Clinical Pharmacology 18 (1): e234-e241.

Facial Photography

1.91 cm

TELETHON KIDS INSTITUTE
Diagnosis. Prevention. Cure.

Lip Circularity

TELETHON KIDS INSTITUTE
Diagnosis. Prevention. Cure.

TELETHON KIDS INSTITUTE
Diagnosis. Prevention. Cure.

TELETHON KIDS INSTITUTE
Diagnosis. Prevention. Cure.



Neurodevelopmental disorders



- Look 'normal'
- Maybe verbal
- Often do NOT have a low IQ
- Say they know what to do
- Non-compliant and uncooperative
- Considered to be 'bad'
- Poor understanding of time
- Negative self image and lack social skills



TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Is there any point diagnosing FASD?

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Proudly supported by the people of Western Australia through Channel 7's Telethon

Consequences of undiagnosed FASD

- **Consequences of undiagnosed FASD**
 - Broad and far reaching effects
- **Undiagnosed FASD adversely affects their development**
 - Loss of education
 - Loss of opportunities
- **In turn affects whole families and the wider community**
 - Increased costs of health
 - Increased costs of welfare services
 - Reduced educational opportunities
 - Reduced employment

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Consequence of early engagement with juvenile justice (ABS statistics)

- **Consequences of youth offending and youth victimisation**
 - Broad and far reaching effects
- **Youth victims and youth offenders have adverse effects on development**
 - Loss of education
 - Loss of opportunities
- **In turn affects whole families and the wider community**
 - Increased costs of health
 - Increased costs of welfare services
 - Reduced educational opportunities
 - Reduced employment

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Develop: 2^o...3^o... 4^o Disabilities

- Low self esteem
- Social exclusion
- Academic failure
- Unemployment
- Inability to live independently
- Mental health disorders
- Addiction
- Sexual deviance
- Problems with the justice system
 - Encounters with the law
 - Confinement

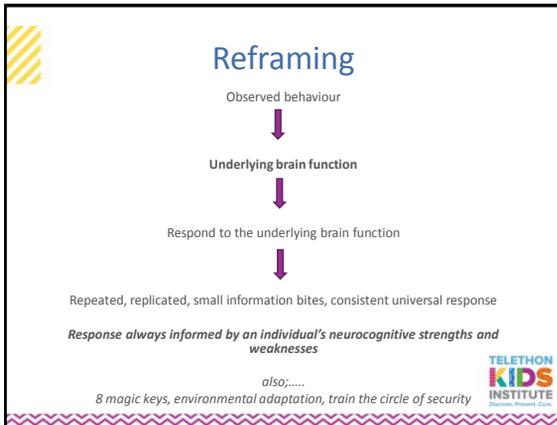
TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Behaviour and response	FASD	ADHD	ODD
Does not complete tasks	May or may not take in information; cannot recall information when needed; cannot remember what to do	Takes in information; can recall information when needed; gets distracted	Takes in information; can recall information when needed; choose not to do what they are told
response	Provide one direction at a time	Limit stimuli and provide cues	Provide positive sense of control; limits and consequences

TELETHON KIDS INSTITUTE
Dan Dubovsky, SAMHSA FASD Center for Excellence http://www.cde.state.co.us/sites/default/files/fasd_anotherbook_schoolpsychologyinstitute

Behaviour and response	FASD	ADHD	ODD
Hits Others	Someone told them to; misinterprets intentions of others; may sense bump as attack; may respond from history of abuse	Frequently an impulsive act	Plans to hurt others; misinterprets intentions of others as attack or impending attack
response	Deal with misinterpretations at the time; one-to-one support	Behavioural approaches to address impulsivity	Consequences; cognitive behavioural approaches

TELETHON KIDS INSTITUTE
Dan Dubovsky, SAMHSA FASD Center for Excellence http://www.cde.state.co.us/sites/default/files/fasd_anotherbook_schoolpsychologyinstitute



- ### Some resources
- Teaching students with FASD
 - <http://www.fldoe.org/ese/pdf/fetalcn.pdf>
 - Eight Magic Keys
 - <http://www.fasdcenter.samhsa.gov/documents/EightMagicKeys.pdf>
 - NOFASD
 - <http://www.nofasd.org.au/>
 - <http://www.fasdoutreach.ca/files/downloads/Churchill%20Report.pdf>
- TELETHON KIDS INSTITUTE
Dan Dubovsky, SAMHSA FASD Center for Excellence

- ### Eight Magic Keys
- Concrete
 - Consistency
 - Repetition
 - Routine
 - Simplicity
 - Specific
 - Structure
 - Supervision
- TELETHON KIDS INSTITUTE
Dan Dubovsky, SAMHSA FASD Center for Excellence
Deb Evensen and Jan Lutke 1997

- ### How much alcohol?
- Guideline 3: Children and young people under 18 years of age**
- under 18 years of age, not drinking alcohol is the safest option.
- Guideline 4: Pregnancy and breastfeeding**
- Maternal alcohol consumption can harm the developing fetus or breastfeeding baby.
 - A. For women who are pregnant or planning a pregnancy, not drinking is the safest option.
 - B. For women who are breastfeeding, not drinking is the safest option.
- <https://www.nhmrc.gov.au/your-health/alcohol-guidelines>

- TELETHON KIDS INSTITUTE
Dan Dubovsky, SAMHSA FASD Center for Excellence

AUDIT-C Questionnaire

1. How often do you have a drink containing alcohol?

- Never
- Monthly or less
- 2-4 times a month
- 2-3 times a week
- 4 or more times a week

2. How many standard drinks containing alcohol do you have on a typical day?

- 1 or 2
- 3 or 4
- 5 or 6
- 7 to 9
- 10 or more

3. How often do you have six or more drinks on one occasion?

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily



TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Three starter questions for asking about alcohol use in pregnancy

- Was your pregnancy planned?
- How many weeks were you when you recognised that you were pregnant?
- Did you change any of your lifestyle factors once you recognised that you were pregnant?
 - embed timing, frequency and dose of risk and protective factors eg: alcohol with exercise, iron, omega 3, smoking, etc

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Links

- <http://telethonkids.org.au/>
- <http://alcoholpregnancy.telethonkids.org.au/>
- <http://www.nofasd.org.au/resources/useful-links#iarft>
- <http://rffada.org/>
- <http://www.fare.org.au/research-development/featured-research/foetal-alcohol-spectrum-disorders-2/>

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Thank you

Questions?

raewyn.mutch@health.wa.gov.au

raewyn.mutch@telethonkids.org.au

@RaewynMutch

TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Proudly supported by the people of Western Australia through Channel 7's Telethon