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2008 FACE POSTER COMPETITION ABSTRACTS

9TH ANNUAL FETAL ALCOHOL CANADIAN EXPERTISE (FACE) RESEARCH ROUNDTABLE

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2008 FACE RESEARCH ROUNDTABLE POSTER COMPETITION ABSTRACTS

1.

Fetal Alcohol Spectrum Disorder cross sector partnership: Supporting parents

Milne, D., Konrad, M, Penner, J.

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Background: To utilize videoconferencing and partnerships in western Canada as a knowledge transfer network and support priorities of the Fetal Alcohol Spectrum Disorder (FASD) Program.

Methods: The FASD-Cross Ministry Committee provided a learning series on raising a child with FASD across the lifespan for biological parents, foster parents, adoptive parents, community partners and stakeholders. The total number of videoconference sites connected for three evening sessions was 73, with 24 of these sites brought together from 3 different sectors (Health and Wellness, Education and Children and Youth Services). The average number of parents registered per session was 147 with a total of 405 attending from Alberta, Saskatchewan, Nunavut, Yukon and Northwest Territories.

Results: Selecting from *Excellent, Good, Fair or Poor*, over 97% of the 325 respondents rated the overall content of the sessions as good to excellent. Parents responded very positively, with 97% agreeing that the content was relevant, 95% stating they would be able to apply what they have learned, and over 95% indicating that their awareness has increased. Ninety percent of respondents agreed that access to videoconferencing technology helped them attend the sessions and 78% of the respondents were satisfied with the video and audio quality of the presentation.

Conclusion/Discussion: By providing practical information that focused on the positive aspect of parenting, building capacity and awareness, Sector partners and parents were very satisfied having rural access to education and the opportunity for local participation and capacity development. Their participation and promotion contributed to the success of this initiative.

Key Words: Videoconferencing, tele-learning, partnerships

Source of Funding: internal

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2.

Public Health Agency of Canada's (PHAC) Fetal Alcohol Spectrum Disorder (FASD) Initiative: Building capacity, evidence and collaboration across jurisdictions, professions and the country to effect system change

Johnston, M.

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Background: FASD impacts several health determinants and is an intersectoral and cross jurisdictional issue. PHAC takes a holistic, integrated approach to working on the prevention and awareness of FASD in Canada and improving outcomes for those already affected.

Methods: By leveraging partnerships and collaboration with all levels of governments as well as stakeholders, academics and communities, PHAC has created ongoing cooperation and action. As part of its leadership role, PHAC supports knowledge development and exchange and works to build capacity within systems that address issues related to FASD. Through consultations, PHAC provides vision and contributes to priority setting. It also supports training, the development of tools for screening and diagnosis and strategies for public and professional awareness-raising.

Results: Concrete undertakings include: supporting the development of national guidelines for the diagnosis of FASD; dissemination of the guidelines to Canadian medical schools; and evaluating the uptake by practitioners and in university curriculum. To improve interdisciplinary diagnostic capacity across Canada,

PHAC commissioned an environmental scan on Canadian diagnostic capacity. In partnership with stakeholders, PHAC facilitated the development of a common vision for action on FASD articulated in *FASD: A Framework for Action*. It is also working towards a national consensus on tools for screening pregnant women for alcohol use and data collection. In building the evidence base for FASD, PHAC is taking the lead in developing a model for calculating the economic impact of FASD in Canada across systems and sectors.

Conclusion/Discussion: PHAC will continue to engage new partners and seek opportunities for collaboration that might contribute to its efforts.

Key Words: Fetal Alcohol Spectrum Disorder, intersectoral, cross jurisdictional collaboration, interdisciplinary diagnostic capacity

Source of Funding: PHAC

Conflict of Interest: N/A

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3. The development of a model to determine the economic impact for Fetal Alcohol Spectrum Disorder (FASD) in Canada

Johnston, M, Bedard, A-M.

Fetal Alcohol Spectrum Disorder Team, Division of Childhood & Adolescence, Public Health Agency of Canada (PHAC).

Background: FASD is an important public health, social and economic issue affecting approximately 1% of the Canadian population. There is limited Canadian and international evidence focussed on assessing the economic impact of FASD. Hence, there is a need for Canadian data illustrating the costs of different life pathways taken by those affected by FASD.

Method: The development of an economic impact model is an exercise in developing and maintaining cross-jurisdictional partnerships for FASD. This project is an opportunity for PHAC to take the lead in accelerating the development of the economics of the public health field to make transparent and fair decisions on the basis of the best tools and data possible.

Results: The Poster provides an overview of the Economic Impact Model and work undertaken to date.

Highlights from Canadian studies looking at general costs of FASD and costs to the Canada Correction Services will be presented. Data from a study looking at incidence of FASD in Manitoba's child welfare services will also be presented as will policy impacts and ongoing work to assess costs.

Conclusion/Discussion: Data available on the cost of FASD per child affected annually do not include the cost of children in care of the child protection systems, special education, cost to the justices system or supportive housing or addictions treatment. A more complete cost estimate, including all affected systems is important in identifying potential intervention points, and the cost-benefit of various interventions.

Key Words: Economic impact, cross-jurisdictional partnerships, Fetal Alcohol Spectrum Disorder

Source of Funding: Public Health Agency of Canada, with in-kind support from Justice Canada

Conflict of Interest: N/A

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4. Building Capacity for the Diagnosis of Fetal Alcohol Spectrum Disorder (FASD) in Canada

Clarren, S¹, Lutke, J², Johnston, M³.

¹Canada Northwest FASD Partnership Research Network, University of British Columbia; ²Centre for Community Child Health Research, University of British Columbia; ³FASD Initiative, Public Health Agency of Canada

Background: FASD is an important public health, social and economic issue affecting approximately 1% of the Canadian population. A medical diagnosis of FASD is the cornerstone to prevention and intervention activities. In 2005, clinical guidelines for the diagnosis of FASD were published in the Canadian Medical Association Journal. The purpose of the study was to survey clinics and diagnostic centres diagnosing FASD in Canada to identify how programs are responding to these Guidelines.

Design: Clinics were identified using a key informant snowball technique. Identified programs were contacted to determine if they had seen FASD patients in 2006 and had utilized at least a two person multi-disciplinary diagnostic team as prescribed in the Canadian Guidelines. Each of these programs were sent a questionnaire asking about capacity, aggregate

diagnostic results, team composition, time of clinical assessment, and cost of assessment.

Results: While the capacity for diagnosis across Canada is uneven, the majority of clinics has embraced the Guidelines and is using an interdisciplinary approach to FASD diagnosis. Capacity is small, considering the large number of potentially undiagnosed individuals in the country. The accessibility of the diagnostic clinics was also found to be an issue.

Conclusion/Discussion: Many of the clinics surveyed have started discussions on training for the implementation of the Diagnostic Guidelines, developing common intake and data collection tools and arriving at decisions regarding common approaches to diagnosing the brain domains of this life long disability.

Key Words: Medical diagnosis, Fetal Alcohol Spectrum Disorder, diagnostic capacity, Canada

Source of Funding: Public Health Agency of Canada, with in-kind support from the Northwest FASD Partnership

Conflict of Interest: N/A

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5.

Prenatal exposure to alcohol and nicotine – Early primary schools outcomes

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Background: The purpose of the study was to examine relationships between prenatal exposure to alcohol and nicotine separately and in combination on developmental outcomes in children over the first four years of primary school, i.e. from ages 4 to 8.

Methods: Measures in five domains of child development outcomes were analyzed: general development, cognitive development/ academic performance, social/emotional functioning, physical health, and behavior problems. Analyses were designed to determine whether prenatal exposure to alcohol and/or nicotine may have differential effects on these various aspects of children's functioning during the early primary school years. The analyses were

carried out on a longitudinal data set comprised of over 400 children.

Results: The results of the analyses indicated that children whose mothers reported high-risk alcohol consumption during pregnancy, as reflected in their scores on the four CAGE questions, showed long-term negative outcomes on measures of school performance and behavior problems. These problems were accentuated in children whose mothers also reported smoking during the pregnancy. The negative effects were most apparent when children were four years of age, and faced with the challenges of formal school entry and again at age 8.

Conclusion/Discussion: These results suggest that prenatal exposure to maternal high-risk drinking and smoking may be linked to cognitive and social development at critical periods in children's development with lifelong consequences.

Key Words: Longitudinal data set, prenatal exposure, alcohol, nicotine, child development outcomes

Sources of Funding: Public Health Agency of Canada, The Government of Ontario

Conflict of Interest: N/A

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6.

The effectiveness of a community-based intervention for parents with FASD

Denys, K¹, Rasmussen, C¹, Henneveld, D², Badry, D³ Andrew, G⁴.

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Background: The purpose of this project was to determine whether participation in Catholic Social Services' Step by Step program results in improved outcomes among parents with FASD. The Step by Step program works with FASD affected adults parenting children with or without FASD and works to help these parents overcome the enormous challenges they face by providing long-term support, strengthening links to community support systems and developing stability within the family.

Methods: We conducted a retrospective analysis of data on 24 clients (aged 19 to 47 years). Pre- and post-

program measures of goals and needs as well as satisfaction surveys and demographic information were collected.

Results: Clients showed significant decreases in the number of needs and increases in the number of goals from pre to post program. Analysis of the client satisfaction surveys showed overall satisfaction of clients in the program. Fifty percent of the sample had an FASD-related diagnosis and the rest were suspected of having FASD. An alarming 83% of the sample had at least one mental health diagnosis, 38% had at least one physical diagnosis, and 71% reported experiencing abuse as a child and/or adult.

Conclusion/Discussion: These findings show that participation in the Step by Step program results in improved outcomes among participants and highlight the importance of supporting parents with FASD in meeting their needs and achieving their goals, as a very high percentage of these parents are also dealing with additional physical and psychological problems. Dissemination of this knowledge is imperative for informing and creating other programs for parents with FASD.

Key Words: FASD, parenting, retrospective analysis

Funding: Alberta Centre for Child, Family and Community Research.

Conflict of interest: None

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7. Evaluating the diagnosis of Fetal Alcohol Spectrum Disorders (FASD)

Rasmussen, C¹, Benz, J¹; Pei, J¹, Andrew, G², Abele-Webster, L²; Schuller, G², Alton, C², Lord, L².

¹University of Alberta; ²Glenrose Rehabilitation Hospital

Background: The purpose of this project was to evaluate the diagnostic process at a hospital FASD clinic. The Canadian guidelines for FASD diagnosis recommend a multidisciplinary assessment across 9 neurobehavioural domains (hard and soft neurological signs, brain structure, cognition, communication, academic achievement, memory, executive functioning, and adaptive functioning); however, the utility of this diagnostic process has not yet been evaluated in a clinical setting. We wanted to determine which domains are most likely to be impaired, which domains differentiate between alcohol-exposed

children who do and do not get a diagnosis of an FASD, and how the age of the child relates to performance across domains.

Methods: We retrospectively analyzed data from 96 children, aged 4 to 17 years (mean age 9 years), who were assessed for FASD. Of these children, 52 were diagnosed with an FASD, and 44 had confirmed Prenatal Alcohol Exposure (PAE) but were not diagnosed with an FASD.

Results: Children with FASD scored significantly worse than children with PAE on all neurobehavioural domains, with the largest differences on the sensory/motor, communication, and memory domains. For children with FASD, the domains most impaired were communication, attention, executive functioning, and adaptive functioning. Amongst the FASD group, older children were more likely to have executive functioning impairments than younger children; however, younger children were more likely to exhibit deficits on sensory/motor and attention domains. The results of this project will inform the diagnostic process for FASD across Canada and have implications for standardizing diagnostic processes across clinics.

Key Words: FASD, diagnosis, retrospective analysis

Source of funding: Alberta Heritage Foundation for Medical Research.

Conflict of interest: None

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8. Double Exposure: A better practices review on alcohol interventions during pregnancy

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Background: To contribute to the ongoing identification of better practices in the provision of support to women related to their use of alcohol in the perinatal period, the British Columbia Centre of Excellence for Women's Health recently undertook a review of literature on evaluated approaches to screening, brief intervention and in-depth support for women of childbearing years.

Methods: Forty one published alcohol interventions were reviewed and rated according to the NICE guidance methods for methodological rigour and

quality. Framework applied – While the UK NICE guidance for systematic reviews was closely followed for the process of selecting and appraising relevant studies, the research team also drew on the Canadian Better Practices model, as described by the CTCRI to guide the secondary process of producing program components, approaches and recommendations.

Results: Program components arising from the reviewed studies will be presented for the three areas of: a) identification, assessment and screening for alcohol use in pregnancy b) brief alcohol interventions with women in their childbearing years and in pregnancy and c) in-depth interventions with pregnant women and mothers. These are contextualized with four better practices approaches. Sixteen recommendations for practice, three recommendations for research and five recommendations for policy, knowledge translation and structural change are presented.

Conclusion/Discussion: This research illustrates the benefits of weaving together systematic review results with the wider literature on best practices in the treatment of women's substance use, to create a contextualised set of recommendations for practice, research, knowledge translation and policy.

Key Words: FASD prevention, evidence review, best practices

Funding: Government of British Columbia, ActNow BC - Healthy Choices in Pregnancy

Conflict of interest: None

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9.

Comparing social cognitive and emotion processing in children with Fetal Alcohol Spectrum Disorder and Attention Deficit Hyperactivity Disorder

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Background: Prenatal exposure to alcohol leads to impairments in social, emotional, and behavioural functioning. The goal of this study was to examine

social cognition and emotional processing in children with fetal alcohol spectrum disorder (FASD), children with attention deficit hyperactivity disorder (ADHD), and typically-developing controls.

Methods: Standardized measures of intellectual and socioemotional functioning, a social cognition task and an emotional processing task (Minnesota Test of Affective Processing, MNTAP), as well as caregiver/teacher reports of social and behavioural skills, were administered to 33 children with FASD, 30 non-exposed ADHD, and 34 controls. All assessments were conducted by a trained examiner at the Hospital for Sick Children. Group differences were examined using Multivariate ANCOVAs, followed by multiple regression analyses.

Results: Children with FASD performed worse than ADHD and controls on understanding false beliefs, deception and sarcasm, and the detection of different facial emotions. The FASD group also performed worse than controls when using emotions to protect other people or themselves from embarrassment. Children's performance on these social cognition and MNTAP tasks predicted social and emotional reports of caregivers/teachers.

Conclusion/Discussion: These results suggest that, compared to children with ADHD and controls, social cognition and emotional processing are not adequately developed in children with FASD.

Key Words: fetal alcohol syndrome, children, socioemotional processing

Source of funding: CIHR

Conflict of Interest: None

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10.

The neuroanatomy of cognitive dysfunction in Fetal Alcohol Spectrum Disorders

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Background: This research aimed to bridge impairments in memory, attention, and executive function in FASD to the underlying neuroanatomic pathology.

Methods: 23 children with FASD and 20 control children, aged 10-14 years, completed a comprehensive clinical battery emphasizing memory, attention, and executive function and underwent MRI in a 1.5T scanner at Toronto's Hospital for Sick Children. Two raters masked to group status manually traced the hippocampal formation and the caudate nuclei to determine volume. MRS was employed to measure metabolite concentrations in voxels placed over the left and right hippocampi. Group differences were analyzed using ANCOVA and relations were assessed using bivariate correlations.

Results: Controlling for IQ, controls outperformed FASDs in everyday and verbal memory and selective executive functioning tasks (all $p < .05$). The FASD group also showed reduced left hippocampal volumes and disturbed maturational changes ($p < .05$): Age correlated with volume in controls, but not in FASD. Decreased glutamine/glutamate and inositol and elevated NAA left hippocampal concentrations in FASD ($p < .05$) further indicate perturbed metabolism. Left and right caudate volumes were also reduced in FASD ($p < .05$). Hippocampal volume and metabolite levels correlated with a unique memory tasks and caudate volume with unique executive functioning tasks in FASD relative to controls.

Conclusion/Discussion: These findings suggest that brain changes in terms of volume, maturational trajectory, and composition caused by prenatal alcohol exposure continue to impact cognitive function into adolescence.

Key Words: Fetal alcohol spectrum disorders, memory, executive function

Source of Funding: CIHR

Conflict of Interest: none

Student/trainee: Postdoctoral Fellow

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11. Ethylglucuronide and ethylsulfate in meconium: new biomarkers of gestational ethanol exposure?

Papaseit, E^{1,2,3}, Joya, X^{1,2,3}, Pichini, S⁴, Garcia-Algar, O^{1,2,3}, Morini, L⁵, Vagnarelli F⁶, Vall, O^{1,2,3}, de la Torre, R^{3,7,8}.

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Background: At present, ethyl glucuronide (EtG) or ethyl sulphate (EtS) were never investigated in neonatal matrices as possible biomarkers of prenatal chronic exposure to alcohol. We investigated the presence and the concentration of EtG and EtS in meconium from two different European newborn cohorts and the eventual correlation between these two biomarkers and fatty acid ethyl esters (FAEEs) from the same meconium samples.

Methods: Liquid chromatography tandem mass spectrometry was applied to measure EtG, EtS and seven FAEEs in meconium samples obtained from Reggio Emilia (RE), Italy (n=60) and from Barcelona (BCN), Spain (n=50). In both groups, the mother-infant dyads were similar in sociodemographic and ethnic characteristics.

Results: Neither EtG nor EtS values correlated with single or total amount of FAEEs in both cohorts' samples. This could be due to the different mechanism of formation of these metabolites. In general terms, values of EtG in meconium samples from Reggio Emilia were statistically lower than those from Barcelona specimens (41.1 and 501ng/g, respectively). When considering only Barcelona samples with FAEEs below 2 nmol/g, the international cut-off that distinguishes heavy drinking mothers had values of EtG that were still different in the two cohorts. Conversely, EtS values were similar when comparing the whole samples from the two city cohorts (2.86 ng/g in RE and 3.63 ng/g in BCN and also RE samples with those from BCN with FAEEs below 2 nmol/g). Both EtG and EtS values discriminated Barcelona samples with total FAEEs equal or above this cut-off.

Conclusion/Discussion: For the first time, this data evidenced the the presence of EtG and EtS in meconium. Further investigations are ongoing to verify the use of these two ethanol metabolites as alternative biomarkers of chronic *in utero* exposure to alcohol.

Key Words: Fatty acid ethyl esters; ethyl glucuronide; ethyl sulfate; liquid chromatography tandem mass

spectrometry.

Funding Source: None

Conflict: None

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12.

FASD: The role of early intervention through the mother-child relationship

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Background: Alcohol is a teratogenic substance that places pre-born children at risk for brain insult, including a diagnosis of Fetal Alcohol Spectrum Disorder (FASD). Mothercraft's Breaking the Cycle Program delivers early intervention programs to biological mothers and their children using an intensive and comprehensive framework to promote positive mother-child-relationships and to improve child developmental outcomes when there has been prenatal exposure to alcohol. This study is an exploratory analysis of the relationships between prenatal and postnatal cumulative risk, maternal perceptions of parenting stress, the quality of the parent-infant relationship, and neurobehavioural domains related to FASD.

Methods: Participants were 21 mother-infant dyads participating in an early intervention program for substance-using women and their children.

Results: Correlational analyses revealed that mothers whose children had higher prenatal risk scores also had higher perceived parenting stress. Additionally, mother-child dyads with higher postnatal cumulative risk had more disordered parent-infant relationships. More dysfunctional parent-infant relationships were associated with a higher number of neurobehavioural problems in the FASD domains. A direct relationship between cumulative risk and neurobehavioral domains related to FASD was not supported. It was further shown that mother-infant dyads with more dysfunctional relationships and those with higher postnatal cumulative risk engaged in early intervention service for longer periods of time.

Conclusion/Discussion: These results support the need for early intervention in order to foster both healthy development in infants at risk for neurobehavioural problems due to prenatal exposure to alcohol as well as healthy mother-child relationships in very young children who are exposed to alcohol prenatally.

Key Words: FASD, early intervention

Funding Sources: Public Health Agency of Canada, Ministry of Child and Youth Services (Ontario), CIHR, York University, Canadian Mothercraft Society

Conflict of Interest: None

Student/Trainee: P. Freeman is a doctoral student in Clinical Developmental Psychology, York University.

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13.

Tailoring a parenting program for families affected by FASD - A research protocol

Volk, JS¹, Feldgaier, S², Tefft, B¹.

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Background: Although FASD is the most common cause of mental retardation (National Institute of Alcohol Abuse and Alcoholism, 1990), there are virtually no empirical reports of effective interventions for this population (Premji, Benzies, Serrett, & Hayden, 2006). Exploratory work suggests that there is a common behavioural phenotype for children with FASD (Nash et al., 2006) and that behavioural problems are mitigated by early multi-faceted intervention which includes help with parenting. Stepping Stones Triple P (SSTP) is a family support intervention designed for parents who have a child with a disability. SSTP teaches parents strategies for increasing desirable behaviour and managing misbehaviour. The program has been successful in reducing problem behaviour and in increasing desirable behaviour in children with numerous complex disorders (Mazzucchelli, Roberts, Studman, & Sanders, 2002; Whittingham, Sofronoff, & Sheffield, 2006). The current presentation describes a research protocol to assist in tailoring the SSTP program for families with children with FASD.

Methods: Parents will be recruited from local agencies currently serving families who have children with FASD. They will complete both quantitative and qualitative survey measures assessing acceptability, usefulness, intention to use, actual use of, and helpfulness of the strategies, as well as parents' attributions for their children's behaviour and their perceptions about the controllability of these behaviours. Measurement will occur prior to, and during the viewing of a video describing and demonstrating the SSTP strategies. Follow-up data will

be collected via face-to-face or telephone interview. Proposed hypotheses and analyses will be outlined.

Key Words: Parenting support, program development, mixed-methods design

Source of funding: NA

Conflict of interest: None

Student/trainee: JS Volk is a full time student

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14.

“Near Beer” beverages: Do they really not contain alcohol?

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Background: Alcohol consumption in pregnancy can result in fetal alcohol spectrum disorder (FASD). Health Canada recommends abstaining from alcohol consumption during pregnancy. Although this may be achieved by persons who abstain or rarely drink alcohol, this may be difficult for regular alcohol consumers. Regular consumers may experience cravings for the taste of alcoholic beverages during their pregnancy. A possible alternative to consuming alcoholic beverages is to consume non-alcoholic or low alcohol containing beverages. The objective of the study was to quantify the amount of ethanol in beverages claiming to contain no ethanol or low ethanol (0.5%).

Methods: Investigators went to local grocery stores to purchase beverages with labels claiming to contain low or no ethanol. Products were purchased in triplicate and, if available, imprinted with different lot numbers. Beverages were brought to the lab where they were aliquoted into coded tubes for analysis. Ethanol levels were quantified by blinded technicians using gas chromatography. The percentage of ethanol was calculated and compared to the levels claimed on the label.

Results: Fifty-three different beverages were purchased for analysis. The analysis revealed that 19 beverages tested contained ethanol levels that were higher than claimed by their labels. Five beverages analyzed contained ethanol levels that were above “low ethanol” levels (>0.5%).

Conclusion/Discussion: The following results suggest that consumers may be misled by labels, leading them to believe they are receiving lower doses of ethanol. These results advocate that pregnant mothers should be cautious when considering low alcohol or non-alcohol containing beverages as an alternative.

Key Words: Ethanol, beverages, GC-MS

Source of funding: CIHR FAS-NET Grant

Conflict of interest: None

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