DALHOUSIE UNIVERSITY
Inspiring Minds

Department of Obstetrics and Gynaecology

27th Annual Research Day

Friday, April 19, 2013

Parker Reception Room
IWK Health Centre

Program Sponsorship

We gratefully acknowledge financial support for this program from:

Research Services, IWK Health Centre

Atlantic Society of Obstetricians and Gynecologists

and

Canadian Foundation for Women's Health

Thank you to our Judges:

Dr. K.S. Joseph,
Division of Maternal Fetal medicine
University of British Columbia

Dr. Simon Jackson,
Division of Cardiology
Dalhousie University

Dr. Katharina Kieser,
Division of Gynaecologic Oncology
Dalhousie University

Research Day
Department of Obstetrics and Gynaecology
Dalhousie University

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Department of Obstetrics and Gynaecology
Dalhousie University

April 19, 2013

0830 Reception with Coffee/Muffins/Fruit

0845 Welcome – Dr. B.A. Armson
Professor and Head,
Department of Obstetrics and Gynaecology
Dalhousie University

Session I: Moderator, Dr. Linda Dodds

0900 **INVITED SPEAKER**
Dr. Simon Jackson, Dalhousie University

0930 Melissa Brooks, PGY5
" The effect of maternal age and travel distance on gestational age at the time of termination for women seeking abortion in New Brunswick"

0946 Seirin Goldade, PGY2: PROPOSAL
"Sensitivity of Colposcopy in Women with Low-Grade Pap Tests"

0957 Chris Holden, PGY4 Memorial University
"Postpartum Diabetes Screening following Gestational Diabetes: How do we measure up?"

1013 Michelle Miller, MED2
"Incidence and carrier frequency of cystic fibrosis (CF) and identification of VUSs in the CFTR gene in pregnancies with echogenic bowel in the Maritime Population"

1026 Jillian Ashley-Martin, PhD Candidate
"*Gestational weight gain and postpartum weight retention in a cohort of Nova Scotian women"*

1045 NUTRITION BREAK

1115 Alex Legge, MED3
"*Seasonal influenza vaccine in pregnancy: Rates, determinants and outcomes"*

1131 Liz Randle, PGY2: PROPOSAL
"*Global health curricula in OB/GYN programs in Canada: a survey of content, and facilitator and barriers to implementation"*

1142 Diane Ahn, PGY4
"*Incidence and perinatal outcome of umbilical cord prolapse in Nova Scotia"*

1158 Krystal van den Heuvel, PGY2 PROPOSAL
"Assessing patients' perception of ability to make an informed decision regarding gynecologic cancer risk reduction strategies after a group counseling session for those with hereditary cancer syndromes"

1210 Kyungsoo Shin, MSc candidate
"Apelin is activated by proprotein convertase subtilin kexin 3"

1226 LUNCH (Classroom B&C)

Session II: Moderator Dr. David Young

1330 INVITED SPEAKER:
Dr. K.S. Joseph, University of British Columbia

1430 Amanda O'Reilly, MED3
"Association between Factor V Leiden, Intrauterine Growth Restriction and Preterm Birth: A Systematic Review & Meta-Analysis"

1446 Robyn Comeau, PGY5
"Study of Shoulder Dystocia Delivery Documentation by Obstetrics and Gynaecology Residents Following Simulated Teaching of Shoulder Dystocia"

1502 Emily Sheppard, BSc Honours candidate
"Metformin directly inhibits ghrelin secretion through the activation of AMP-activated protein kinase"

1518 Jessica Bosse, PGY2 PROPOSAL
"*Induction of labor with oxytocin in Nova Scotian women: Does BMI ,influence mode of delivery and time to delivery?"*

1529 Kelli Flemming, MED3
Targeted rapid aneuploidy detection (RAD) for chromosomes 13, 18, 21, X and Y compared to full fetal karyotype: implications for patient counseling and choice of prenatal test.

1545 **Awards Presentation**
Refreshments to be served in the Parker Reception Room

ABSTRACTS

The effect of maternal age and travel distance on gestational age at the time of termination for women seeking abortion in New Brunswick

Melissa Brooks MD, Isabelle Delisle MD FRCSC, Suzanne Roberts MD MSc

Objective: Access to abortion in the New Brunswick and PEI is severely restricted, and women often have to travel long distances to obtain abortion services. This study was undertaken to investigate whether travel distances affects the gestational age at which women present for pregnancy termination.

Methods: This study was a retrospective chart review of all patients having an abortion at the Morgentaler clinic in Fredericton, NB in 2009. From each chart the patients age, gravidity, parity, the gestational age on the day of the procedure was determined. The distance from her stated home address to the clinic was calculated
Results: There was a statistically significant positive correlation between maternal age and distance travelled (correlation coefficient 0.111, p=0.01), and a negative correlation between maternal age and gestational age at the time of termination (correlation coefficient -0.161, p=0.01). Women having abortions at or greater than 12 weeks gestation were significantly younger than women who had abortions at less than 12 weeks (24.2 vs 26.7, p=<0.001). Women who travelled 125 km or more were likely to be older than women who travelled shorter distances (25.4 vs 27.1, p=0.001). Logistic regression confirmed an association between maternal age and gestational age of >/=12 weeks at the time of abortion (OR 0.91, p=<0.001).

Conclusion: This study did not show that travel distance correlates with gestational age at the time of abortion. We did find that younger women were more likely to present in the second trimester, and that women who had travelled longer distances tended to be older. These findings suggest that younger patients in the province may be having more difficulty accessing abortion services.

Sensitivity of Colposcopy in Women with Low-Grade Pap Tests.

Seirin Goldade MD, James Bentley MBChB, FRCSC

Background: Eligible Nova Scotian women are currently screened for cervical cancer by cervical cytology (Pap tests) at regular intervals, with referral to colposcopy when abnormal cytology is identified. While historically colposcopy was considered to have near-perfect sensitivity, recent literature has suggested its sensitivity to detect high-grade dysplasia in women presenting with low-grade cervical cytology is significantly lower.

Objective: The primary objective of this study is to determine the sensitivity of the colposcopic exam to detect high-grade dysplasia in women presenting with low-grade cytological abnormalities (ASCUS or LSIL). Secondary objectives include comparison of the sensitivity when the initial colposcopic impression is negative versus suggestive of dysplasia, and comparison of the sensitivity in women who test positive for high-risk HPV, compared to those who test negative.

Methods: A retrospective cohort trial will be performed on 221 Nova Scotian women referred for colposcopy with a history of abnormal cytology. Data, including baseline cervical cytology, HPV testing and histology, has previously been collected on this cohort, which was followed for two years time as part of a study of testing modalities for oncogenic HPV. Renewed ethics approval will be sought to re-analyze this data and to obtain additional data from these womens' health records. The sensitivity of the colposcopic exam will be defined by the number of women in whom high-grade dysplasia is identified on initial colposcopic exam over the number of women in whom high-grade dysplasia is identified over 2 years of follow up. High-grade dysplasia will be defined as CIN3 or worse (primary endpoint) or CIN 2 or worse (secondary endpoint). Comparisons between groups will be made by a chi square test.

Results and Conclusions: Pending.

Postpartum Diabetes Screening following Gestational Diabetes: How do we measure up?

Chris Holden, MD, Robert Kennedy, MD, FRCSC, Phil Murphy, MSc.
Discipline of Obstetrics and Gynecology, Memorial University

Introduction: Women diagnosed with gestational diabetes (GDM) have a significantly higher risk of GDM in subsequent pregnancies and development of type 2 diabetes (DM2) in the years following pregnancy.Studies have consistently shown that the majority of women diagnosed with GDM do not receive appropriate follow up testing for DM2 as recommended by clinical practice guidelines. The range of women completing follow up testing is reported to be 23% to 58% in current literature. The primary objective of this study was to determine the rate of postpartum diabetes screening in a Newfoundland population.

Study Methods: We performed a retrospective chart review for all women diagnosed with GDM in the Eastern Health catchment area between 2001 and 2009. A total of 700 cases of GDM were identified.Medical records were reviewed for each patient to determine if follow up testing was completed in the recommended 6 week to 6 month period postpartum. A 2 hour 75g oral glucose tolerance test (OGTT), fasting plasma glucose, or HbA1C was considered acceptable for follow up testing. The percentage of women subsequently meeting criteria for diagnosis of DM2 in the years following diagnosis of GDM was determined.

Results:A total of 525 cases were considered adequate for assessment. Of the 525 cases of GDM reviewed 174 (33.1%) had appropriate follow up testing in the recommended time period. Of the 525 cases, 511 individual patients were identified and 73 (14.3%) subsequently met criteria for diagnosis of DM2 in the years following diagnosis of GDM.

Conclusion: The percentage of women completing recommended follow up screening for DM2 was low but consistent with other populations. The percentage of women subsequently diagnosed with DM2 was also consistent with other populations.

Association between Factor V Leiden, Intrauterine Growth Restriction and Preterm Birth: A Systematic Review & Meta-Analysis

Amanda O'Reilly MED3, Victoria Allen MD FRCSC, Stefan Kuhle MD MPH PhD, Jo-Ann Brock, MD PhD FRCSC

Objective: Numerous studies investigating an association between the Factor V Leiden (FVL) mutation in intrauterine growth restriction (IUGR) and preterm birth have reported conflicting results. A systematic review and meta-analysis was conducted to examine these potential associations.

Study methods: A literature search of PubMed, Embase, Scopus, CINAHL, and the Cochrane Library was performed through March 2012 for cohort and case-control studies involving FVL associated with outcomes of IUGR and preterm birth. Additional studies were identified from reference lists of relevant research and review articles. Study quality was assessed using the Newcastle-Ottawa Scale. A random effects model with inverse variance weighting was used to calculate pooled odds ratios. Subgroup analyses were performed by study design.

Results: The systematic review yielded 40 studies suitable for inclusion in the meta-analysis. Thirty studies evaluated IUGR, while 16 studies assessed preterm birth. The overall odds ratio for FVL and IUGR was significant (OR 1.50, 95% CI 1.21 – 1.87). Analysis of 12 cohort studies resulted in an OR of 1.23 (95% CI 1.03 – 1.47), while data from 18 case-control studies yielded an OR of 2.19 (95% CI 1.47 – 3.26). There was no significant association between FVL and preterm birth (OR 1.08, 95% CI 0.89 – 1.33), which persisted when cohort (OR 1.06, 95% CI 0.86 – 1.29) and case-control (OR 1.13, 95% CI 0.74 – 1.71) studies were analyzed separately.

Conclusions: There is an association between FVL and IUGR, although it appears to be largely influenced by early case-control studies. FVL does not appear to be associated with preterm birth.

Gestational weight gain and postpartum weight retention in a cohort of Nova Scotian women

Jillian Ashley Martin PhD Candidate, Christy Woolcott PhD

BACKGROUND: Excess gestational weight gain (GWG) may predispose mothers to becoming overweight or obese. The aim of this study was to investigate the association between GWG, according to the American Institute of Medicine (IOM) guidelines, and postpartum weight retention (PPWR).

METHODS: A cohort of 12,875 women from Nova Scotia, Canada with at least two consecutively recorded pregnancies was identified through a population-based perinatal database from 1993-2010. Gestational weight gain was calculated as the difference between delivery weight and prepregnancy weight. Postpartum weight retention was calculated via interpregnancy weight change. Multiple linear regression models were used to estimate the association between GWG and PPWR adjusting for confounding factors.

RESULTS: Fifty eight percent of the total study population gained in excess of the IOM guidelines. Mean PPWR, adjusted for age and prepregnancy body mass index (BMI), among women with excess GWG was 5.0 kg (95% CI: 4.9-5.2), greater than those with adequate (2.1 kg, 95% CI: 1.8-2.3) or inadequate GWG (0.3 kg, 95% CI: 0-0.7). Effect modification by prepregnancy BMI was observed; the relationship between excess GWG and increased PPWR was observed in all prepregnancy BMI categories, yet was greatest among underweight women (7.5 kg, 95% CI: 6.6-8.3). Effect modification by parity was also observed; in contrast to multiparous women, primiparous women who gained in excess of GWG guidelines retained more postpartum weight (5.3 kg 95% CI: 5.1-5.5 vs. 4.3 kg 95% CI: 4.0-4.7).

CONCLUSIONS: This study demonstrates that excess GWG is associated with a statistically significant increase in the amount of weight retained after pregnancy. Interventions targeted to promote optimal GWG are warranted.

Seasonal influenza vaccine in pregnancy: Rates, determinants and outcomes

A. Legge, L Dodds PhD, N MacDonald MD MSc FRCPC, J Scott MB, ChB, MHSc, MHSA, FRCPC, S McNeil MD FRCPC

Objectives: We determined influenza vaccination rates among pregnant women during two nonpandemic influenza seasons (2010-2012) following the 2009 H1N1 pandemic. We explored various maternal factors as predictors of influenza vaccination status and evaluated the relationship between maternal influenza vaccination and neonatal outcomes.

Methods: We used a population-based perinatal database to examine maternal vaccination rates, determinants of vaccination status and neonatal outcomes. Our cohort included Nova Scotia women delivering between November 1, 2010 and March 31, 2012. Logistic regression was used to compare neonatal outcomes between vaccinated and unvaccinated women after adjustment for confounding factors.

Results: Overall, 1958/12223 (16.0%) women in our cohort received the influenza vaccine during their pregnancy. Marital status, parity, rural vs. urban residency, smoking status during pregnancy, and maternal influenza risk status were all significant determinants of maternal vaccine receipt. Preterm birth (< 37 weeks gestation) was less likely among infants of vaccinated mothers (OR = 0.76; 95% CI 0.61-0.95) when compared to infants whose mothers did not receive the vaccine. The rate of low birth weight infants was also lower among vaccinated women in our cohort (OR = 0.74; 95% CI 0.57-0.95).

Conclusion: Current guidelines advise that all pregnant women should receive the seasonal influenza vaccine. Despite these recommendations, influenza vaccination rates among pregnant women in Nova Scotia remain disappointingly low in the aftermath of the 2009 H1N1 pandemic. In light of mounting evidence suggesting an association between maternal influenza vaccination and improved neonatal outcomes, stronger initiatives promoting vaccination during pregnancy are essential.

Global health curricula in OB/GYN programs in Canada: a survey of content, and facilitator and barriers to implementation.

Elizabeth Randle, MD, Heather Scott MD FRCSC

Background: Interest in global health training is increasing. In 1980, only 6% of graduating medical students had undertaken a global health elective, whereas this number jumped to 30.5% in 2011 (1). At the undergraduate medical education level, advances in global health education have included the development of global health offices, formal global health curricula and standardized overseas elective experiences. Residency programs have been slow to follow suit. A review of the literature reveals that nothing has been written on the topic of global health curricula in obstetrics and gynecology residency programs in particular. This area therefore remains an important field of research.

Objectives: This study will aim to assess the formal and informal global health curricula currently in place at all obstetrics and gynecology residency programs in Canada. The structure and content of curricula, as well as factors that act to facilitate or are barriers to implementation of global health curricula will be assessed.

Methods: An online survey will be distributed to all sixteen obstetrics and gynecology residency programs in Canada. Targeted respondents will include global health chairpersons and program directors as identified on departmental websites. The survey will assess components of global health curricula currently in place, as well as respondents' perceptions of factors that have acted or continue to act as facilitators or barriers to implementing global health curricula. Non-responders will be contacted via email and phone call with the intent of capturing the entire population of interest.

Analysis: Frequencies and proportions for all data collected will be reported. Measures of variance for proportion means will also be reported.

References: Association of American Medical Colleges. *2011 Medical School Graduation Questionnaire: All Schools Summary Report.* Washington, DC: Association of American Medical Colleges; 2011.

Incidence and perinatal outcome of umbilical cord prolapse in Nova Scotia.

Diane Ahn MD, Colleen O'Connell PhD, Thomas Baskett MB FRCSC

Objective: To describe the incidence and perinatal outcome of umbilical cord prolapse (UCP) from 1988-2010 in Nova Scotia

Study methods: a retrospective population - based case control study of umbilical cord prolapse from 1982-2010 in Nova Scotia. Primary outcome variables include the incidence of UCP, detection-to-delivery interval and neonatal morbidity.

A retrospective population - based case control study of umbilical cord prolapse from 1982-2010 in Nova Scotia using the Nova Scotia Atlee Database. Primary outcome variables include the incidence of UCP, perinatal mortality and neonatal morbidity. Hospital charts were reviewed to determine detection-to-delivery and bradycardia-to-delivery intervals for tertiary hospital cases of UCP.

Results: From 1988-2010 there were 502 cases of UCP in 234, 333 infants (0.21%). Neonatal mortality occurred in 29/502 (5.78%) [OR 10.61 (7.13-17.71), P<0.001] compared to the control group. Mortality among liveborns was 5.71% [OR 16.48 (10.88-24.79), P<0.001] Hypoxicischaemic encephalopathy was 2.9% Vs 0.21%, [OR 14.30 (8.00-25.06] Need for resuscitation and admission to NICU were also significantly higher in the prolapse group. Abnormal cord pH was detected in 30.45% of babies with UCP [OR 2.79 (2.10-3.70), p<0.001]

Of 156 cases at the tertiary hospital, the median detection-to-delivery interval was 13 minutes (range 3-27 min. The median bradycardia-to-delivery interval was 16 minutes (range 10-33 minutes).

Conclusion: The incidence of umbilical cord prolapse in Nova Scotia was 0.21%; with higher neonatal morbidity. The detection-to-delivery interval and bradycardia-to-delivery interval relationship to neonatal outcome will be presented.

Assessing patients' perception of ability to make an informed decision regarding gynecologic cancer risk reduction strategies after a group counseling session for those with hereditary cancer syndromes

Krystal Van den Heuvel MD, Katharina Kieser MD FRCSC

Background/Objective: Hereditary Breast and Ovarian Cancer (HBOC) and Lynch Syndrome are associated with a predisposition to developing gynecologic cancers. In our institution, those who are diagnosed with a known mutation are offered an additional counseling session with a gynecologic oncologist to further discuss risk management. This clinic consists of both a group and individual sessions. Our objective is to evaluate the patients' perception of the effectiveness of this clinic toward their ability to make an informed decision regarding risk reduction.

Methods: We aim to survey all female patients who were found to have a mutation associated with HBOC or Lynch Syndrome seen through Maritime Medical Genetics Service (MMGS). We will assess both those who were seen only at MMGS as well as those who chose to have additional counseling with the gynecologic oncologist. We will exclude any patients who were diagnosed with ovarian or endometrial cancer prior to her counseling session, as well as those who had a hysterectomy and/or bilateral salpingectomy for other reasons.

Apelin is activated by proprotein convertase subtilin kexin 3

Kyungsoo Shin MSc candidate, Aditya Pandey PhD, Jan K. Rainey PhD, Younes Anini PhD

Introduction: Apelin is a hormone highly expressed in fat tissue and heart. Apelin is well known for its functions in heart for decreasing blood pressure and increasing cardiac muscle contraction. In addition, apelin production increases with obesity in fat. At the cell level, Apelin is first made as a prohormones (proapelin) that must be cleaved into many active small peptides that vary in length from 13 to 36 amino acids. The length is important for efficacy and potency. Different apelin isoforms are preferentially produced in various tissues. We hypothesize that there is a differential activation of proapelin in the heart and fat. To verify this hypothesis, we analyzed proapelin maturation by the hormone-activating enzyme PCSK3 using an in vitro system.

Methods: To study PCSK3-dependent proapelin activation *in vitro*, we first produced proapelin by *E.coli.* Activation of proapelin by PCSK3 reaction was monitored by a combination of high performance liquid chromatography and mass spectrometry analysis. Further expression of proapelin and PCSK3 in fat cells was analyzed by quantitative reverse transcription polymerase chain reaction in mouse derived 3T3-L1 adipocyte cell line and in mouse models of obesity.

Results: PCSK3, but not other PCSKs, was able to generate the apelin-13 isoform. In addition, proapelin and PCSK3 expression were found to be increased during fat cell differentiation and in fat tissue of mouse models of obesity.

Discussion: Our findings are the first to demonstrate proapelin activation by PCSK3 and increased production of proapelin and PCSK3 with fat cell differentiation and obesity.

Incidence and carrier frequency of cystic fibrosis (CF) and identification of VUSs in the *CFTR* gene in pregnancies with echogenic bowel in the Maritime Population

Michelle E Miller, MED2 and Jo-Ann K Brock, MD FRCSCS

Background: Fetal echogenic bowel (EB) is associated with cystic fibrosis (CF), with incidence ranging from 1-13%. Prenatal testing is done by mutation screening of fetal or parental blood samples. When one mutation is identified, sequencing the *CFTR* gene can be undertaken to identify a possible second mutation. This may, however, identify variants of unknown significance (VUS) that can cause parental anxiety. In order to provide accurate counseling for families in the Maritimes, the incidence of CF associated with EB, carrier frequency of common CF mutations, and potential VUSs were investigated.

Study methods: All pregnancies for which CF testing was undertaken for the indication of EB (from NS, PEI, parts of NB) were identified (2007-2012). The *CFTR* screening and sequencing results were reviewed, and fetal outcomes assessed. Results were used to determine the incidence of CF, carrier frequency, and presence of VUS in these pregnancies.

Results: A total of 378 pregnancies were tested for *CFTR* mutations after a finding of EB. Four were confirmed CF, giving an incidence of 1% in this population. The carrier frequency of CF among parents was 4% (1/24); when excluding affected fetuses, the carrier frequency was 3% (1/33). *CFTR* gene sequencing identified one additional pathogenic mutation (affected fetus), and two VUSs (unaffected fetuses).

Conclusions: The incidence of CF for pregnancies with EB in our Maritime population is 1%, with a carrier frequency of 4%. These results provide improved risk assessment for Bayesian analysis in this population. Counseling regarding VUSs should be undertaken prior to gene sequencing.

Study Of Shoulder Dystocia Delivery Documentation by Obstetrics and Gynecology Residents Following Simulated Teaching of Shoulder Dystocia

Robyn Comeau MD, Catherine Craig MD FRCSC

Introduction: Simulation based medical education is a useful tool in training for high risk –low frequency events and has been used in obstetrics and gynecology. The potential for both maternal and fetal adverse outcomes in high in such events, therefore documentation is important for patient care as well as medico legal proceedings should they arise.

Purpose: The purpose of the research study was to determine if simulated medical education teaching of shoulder dystocia delivery and its documentation would improve resident documentation of shoulder dystocia in a real life scenario.

Methods: The study was a prospective cohort study conducted from November 2010-December 2012. The cohort group consisted of the PGY2-5 residents in the obstetrics and gynecology program at Dalhousie University. When available, 2 charts were reviewed for each resident; one prior to and one following the educational session.

Data Analysis: Both the MacNemar test and paired t-test were used to evaluate if there was a statistically significant difference in our pre and post simulation checklist.

Hypothesis: Our hypothesis for this research project was that simulated teaching of shoulder dystocia delivery and its documentation would improve resident documentation of shoulder dystocia in real life scenarios.

Findings: In our study, the shoulder dystocia simulated teaching intervention did not translate to any improvement in resident documentation of shoulder dystocia deliveries in real life.

Conclusion: Although the simulated teaching intervention did not translate into improved documentation, we have identified the need for a memory aid outlining the essential components of a shoulder dystocia delivery. This template could be made available to residents while dictating so that key components of the delivery are not missed in the documentation of the events.

Metformin directly inhibits ghrelin secretion through the activation of AMP-activated protein kinase.

Emily Sheppard BSc Candidate, Jeff Gagnon PhD, and Younes Anini PhD

Background: The antidiabetic drug Metformin causes weight loss in both diabetic and non-diabetic individuals. Metformin treatment is also associated with lower circulating levels of the orexigenic hormone ghrelin.

Methods: To test whether Metformin directly affects ghrelin cells, rat primary stomach cells were treated with Metformin and the levels of ghrelin secretion, proghrelin gene expression and activation of adenosine monophosphate-activated protein kinase (AMPK) were examined. **Results:** Metformin significantly reduced ghrelin secretion and proghrelin mRNA production and both these effects were blocked by co-incubation with the AMPK inhibitor compound C. Furthermore, the AMPK activator 5-amino-1-β-D-ribofuranosyl-imidazole-4-carboxamide (AICAR) significantly inhibited ghrelin secretion. Additionally, ghrelin cells were shown to express AMPK. Finally, Metformin treatment caused a significant increase in the level of phosphorylated (active) AMPK.

Conclusions: Our results show that Metformin directly inhibits stomach ghrelin production and secretion through AMPK. This reduction in ghrelin secretion may be one of the key components in Metformin's mechanism of weight loss.

Induction of labor with oxytocin in Nova Scotian women: Does BMI ,influence mode of delivery and time to delivery?

Jessica Bossé MD, Christy Woolcot PhD, B.A. Armson MD FRCSC

Background: Induction of labor has become an increasingly common obstetrical intervention. Simultaneously, obesity has been on the rise. A recent provincial report on induction of labor prepared by the Reproductive Care Program of Nova Scotia stated that the rate of induction in Nova Scotia was 28% in 2009, up from 17.6 in 1994. The percentage of the pregnant population with a pre-pregnancy weight of >100 kg also increased, from 1.8% in 1990 to 7.8% in 2009. The rate of cesarean delivery increases with maternal BMI. It is clear that obesity is associated with an increased risk of prolonged labor and cesarean section when labor is induced, however, the relationship between oxytocin dose, BMI, and successful induction has not been studied. This project aims to describe the prevalence of cesarean section in Nova Scotian women undergoing induction of labor with oxytocin by BMI class. This may help identify a need to prospectively study dosing of oxytocin in the obese population.

Methods: Using the Atlee Perinatal Database, women undergoing induction with oxytocin in the province of Nova Scotia from 2003-2012 will be identified. A retrospective cohort analysis will be done to examine the relationship between induction with oxytocin, maternal BMI, and cesarean section rates. Variables analyzed will include potential confounders, such as parity, indication for induction, gestational age, use of cervical ripening agents, and fetal weight. Data will be analyzed using SPSS with the help of a departmental statistician. The study population will be broken down into four exposure categories: underweight, normal weight, overweight, and obese. Time to delivery and mode of delivery will be analyzed for each group.