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Motivation to Access Laparoscopic Skills Training by Obstetrics and Gynaecology Residents: A Novel Tool to Characterize Motivation

Stairs, J, Bergey BW, Maguire F, Scott S.

Dalhousie University

**Background:** Competency based medical education (CBME) requires novel approaches to surgical education. Significant investment has been made in laparoscopic simulation, which has been shown to foster skill development prior to patient encounters. However, research suggests variable voluntary use of these resources by residents, and little is known about the motivational factors that influence their utilization. Our primary objective was to characterize factors that motivate residents to seek laparoscopic simulation experience outside of the formal curriculum.

**Methods:** In this prospective cohort study of 44 Canadian obstetrics and gynaecology residents, we administered a validated questionnaire grounded in Expectancy Value Theory of motivation to understand what shapes voluntary laparoscopic simulation use. We conducted content analysis of open-ended responses about barriers, identified motivational correlates of simulation use and surgical experience, and conducted ANOVAs to assess differences in motivations between junior (PGY2-3) and senior (PGY4-5) residents.

**Results:** Residents identified barriers including lack of time, access, and supervision, and some expressed doubt about the transferability of laparoscopic simulation to the operating room. Compared to junior residents, senior residents reported greater enjoyment of laparoscopic surgery, less emotional costs, and higher self-efficacy for learning laparoscopy. While self-efficacy beliefs were robustly correlated with residents’ surgical experience, only competing responsibilities was a significant negative correlate of simulation use.

**Conclusion:** Residents’ motivation for developing laparoscopic skills increase during residency, yet perception of utility and barriers, especially competing responsibilities, impede voluntary simulation use. As programs undertake curricula redevelopment for CBME, mitigating barriers and improving perceived utility of laparoscopic simulation could optimize use and enhance skill development.
Use of artificial intelligence (AI) in the interpretation of intrapartum fetal heart rate (FHR) tracings: a systematic review and meta-analysis

Jacques Balayla

McGill University

Objectives: To determine the degree of inter-rater reliability (IRR) between human and artificial intelligence (AI) interpretation of fetal heart rate tracings (FHR), and to determine whether AI-assisted electronic fetal monitoring interpretation improves neonatal outcomes amongst laboring women.

Data sources: We searched Medline, EMBASE, Google Scholar, Scopus, ISI Web of Science and Cochrane database search, as well as PubMed (www.pubmed.gov) and RCT registry (www.clinicaltrials.gov) until the end of October 2018 to conduct a systematic review and meta-analysis comparing visual and AI interpretation of EFM in labor. Similarly, we sought out all studies evaluating the IRR between AI and expert interpretation of EFM.

Tabulation, integration, and results: Weighed mean Cohen's Kappa was calculated to assess the global IRR. Risk of bias was assessed using the Cochrane Handbook for Systematic Reviews of Interventions. We used relative risks (RR) and a random effects (RE) model to calculate weighted estimates. Statistical homogeneity was checked by the χ2 test and I2 using Review Manager 5.3.5 (The Cochrane Collaboration, 2014.) We obtained 201 records, of which 9 met inclusion criteria. Three RCT's were used to compare the neonatal outcomes and 6 cohort studies were used to establish the degree of IRR between both approaches of EFM evaluation. With regards to the neonatal outcomes, a total of 55,064 patients were included in the analysis. Relative to the use of clinical (visual) evaluation of the FHR, the use of AI did not change the incidence rates of neonatal acidosis, cord pH below < 7.20, 5-min APGAR scores < 7, mode of delivery, NICU admission, neonatal seizures, or perinatal death. With regards to the degrees of inter-rater reliability, a weighed mean Cohen's Kappa of 0.49 [0.32-0.66] indicates moderate agreement between expert observers and computerized systems.

Conclusion: The use of AI and computer analysis for the interpretation of EFM during labor does not improve neonatal outcomes. Inter-rater reliability between experts and computer systems is moderate at best. Future studies should aim at further elucidating these findings.
A VALIDATION OF HYSTERECTOMY PROCEDURAL CODES IN THE CANADIAN INSTITUTE FOR HEALTH INFORMATION DISCHARGE ABSTRACT DATABASE

Vanessa Bacal, MD, MSc1, Abdul J Choudhry, MBBS FCPS K MSc2, Kristina Baier, BHS3, Maria C Médoc, BHS3, Sara-Michelle Gratton, BScInf2, Simonne Khair, BSc3, Stéphanie Mercier, BSc3, Vincent Nguyen, BSc3 and Innie Chen, MD MPH FRCSC1,2

(1)Department of Obstetrics and Gynecology, University of Ottawa, Ottawa, ON, Canada, (2)Ottawa Hospital Research Institute, Ottawa, ON, Canada, (3)School of Medicine, University of Ottawa, Ottawa, ON, Canada

Objectives: The Canadian Institute of Health Information (CIHI) Discharge Abstract Database (DAD) is the main source of routinely-collected data for gynecologic surgery in Canada and are increasingly used for research. As these data were originally collected for healthcare administrative purposes, like billing or surveillance, they are prone to error and should be validated prior to their use for clinical research. The objective of this study was to validate hysterectomy codes from the CIHI-DAD at a single institution.

Methods: We obtained a consecutive sample of all gynecologic procedures performed from April 2016 to March 2017 using the CIHI-DAD at The Ottawa Hospital. Patient data, including diagnosis, procedure type, and surgical approach, were reabstracted from charts. Reabstracted chart data were then compared to CIHI-DAD Canadian Classification of Health Interventions (CCI) codes using sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and kappa coefficient with associated 95% confidence intervals.

Results: Of 1079 gynecologic procedures, 649 hysterectomies were performed, including 23.3% vaginally, 17.1% laparoscopically, and 14.9% abdominally. The median patient age was 46 years (interquartile range: 41-54). The sensitivity, specificity, PPV, NPV, and kappa, with associated 95% confidence intervals, for all hysterectomies was 94.8%(92.8-96.4%), 88.4%(85.0-91.3%), 92.5%(90.2-94.4%), 91.8%(88.7-94.3%) and 0.84(0.80-0.87), respectively. For vaginal hysterectomy, sensitivity=88.8%(84.3-92.5%), specificity=99.2%(98.3-99.7%), PPV=97.0%(93.8-98.9%), NPV=96.7%(95.3-97.8%), and kappa=0.91(0.87-0.94). For laparoscopic hysterectomy, sensitivity=91.3%(86.3-95.0%), specificity=92.8%(91.0-94.4%), PPV=72.4%(66.2-78.1%), NPV=98.1%(97.0-98.9%), and kappa=0.79(0.71-0.81). For abdominal hysterectomy, sensitivity=96.9%(93.9-99.0%), specificity=94.9%(93.2-96.2%), PPV=76.8%(70.4-82.5%), NPV=99.4%(98.7-99.8%), and kappa=0.83 (0.78-0.87).

Conclusions: Our study suggests a high level of validity for hysterectomy CCI codes in the CIHI-DAD for clinical research purposes.
Title to be confirmed

Alison Carter-Ramirez

McMaster University

Objectives: To describe the population-level risk of adverse infant and maternal outcomes for women with a history of imprisonment and to compare these with the general population.

Methods: We conducted a retrospective cohort study using linked correctional and health data for women released from Ontario provincial prisons in 2010. We defined three exposure groups for deliveries in Ontario between 2005-2015: deliveries to women in prison during pregnancy but not necessarily for delivery, prison pregnancies; deliveries to women who had been in prison but not while pregnant, prison controls; and general population deliveries. We compared groups using generalized estimating equations. Primary outcomes were preterm birth, low birthweight, and small for gestational age birthweight. We included numerous maternal and infant secondary outcomes.

Results: In prison pregnancies (N=544) and prison controls (N=2,156), the risk of preterm birth was 15.5% and 12.5%, the risk of low birthweight was 13.0% and 11.6%, and the risk of small for gestational age birthweight was 18.1% and 19.2%, respectively. Compared to general population deliveries (N=1,284,949), odds ratios were significantly increased for prison pregnancies and prison controls, at 2.7 (95% CI 2.2-3.4) and 2.1 (95% CI 1.9-2.4) for preterm birth, 3.1 (95% CI 2.4-3.9) and 2.7 (95% CI 2.34-3.1) for low birthweight, and 1.6 (95% CI 1.3-2.1) and 1.8 (95% CI 1.6-2.0) for small for gestational age birthweight.

Conclusion: There is an increased risk of adverse outcomes for deliveries in women who experience imprisonment compared to the general population, whether they are in prison during pregnancy or not.
Part I: Performance of a Scoring Tool to Predict Postpartum Hypertension

Predicting Postpartum Hypertension Series

Dr. Bobbi Batchelor, MD, Dr. Lexy Regush MD, FRCS

University of Saskatchewan

Objective: Postpartum hypertension occurs in 10% of all deliveries, with peak blood pressure occurring on days 3-7 postpartum, which is days after discharge from hospital. The consequences of uncontrolled hypertension can be devastating, and the postpartum period is a unique time in pregnancy where there is limited medical surveillance between hospital discharge and 6 weeks postpartum. This highlights the need for a system that can predict patients at high risk for the development of postpartum hypertension prior to being discharged from hospital. Using known risk factors for the development of postpartum hypertension, we created a scoring tool that we proposed would predict women at risk of postpartum hypertension.

Methods: A retrospective cohort study was performed to determine the primary outcome. Secondary outcomes looked at rates of undiagnosed postpartum hypertension and hospital returns for hypertension-related issues. Odds ratios were calculated for individual risk factors to determine their correlation with the outcome. Logistic regression models were used to create a new scoring tool.

Results: 992 patients were included in the study with a rate of postpartum hypertension of 10.7%. Of patients with new onset postpartum hypertension, 84% of these women left hospital without a diagnosis or discharge plan. The original scoring tool was found to have a sensitivity of 78% with specificity of 93% for predicting postpartum hypertension. The revised scoring tool had a sensitivity of 83%, with specificity of 93%, PPV of 55.7% and NPV of 97.9%. The revised tool represented only parameters with the highest predictive value for the development of postpartum hypertension in our population.

Discussion: This study identified an easy-to-use scoring tool that accurately predicts postpartum hypertension. Literature shows that other centres have similar difficulties with identifying at-risk women, and therefore this tool could be used at a national level to mitigate this major gap in postpartum care.
Managing Women with Obesity in Pregnancy: The Scope of Practice in the Wake of the Obesity Epidemic

Shawna Stafford¹, Ashley Demsky¹, Arya Sharma², Daniel Birch³, Richard Oster¹, Helen Steed¹

¹Department of Obstetrics and Gynecology, Faculty of Medicine & Dentistry, University of Alberta, ²Department of Medicine, Faculty of Medicine & Dentistry, University of Alberta, ³Department of Surgery Faculty of Medicine & Dentistry, University of Alberta

Introduction: Obesity is a complex disease affecting increasing numbers of reproductive aged women. Despite ongoing research efforts, many knowledge gaps remain when caring for women with obesity in pregnancy. Currently, there is no clearly defined, comprehensive standard of care for pregnant women with obesity. Consequently, obstetricians have developed different approaches. In this study, we explored these approaches and how management of women with obesity differs from that of normal weight patients. Furthermore, we aimed to gain a better understanding of how obstetricians define obesity, as there is currently no consensus definition.

Methods: A mixed methods approach was used. Qualitative concept maps were generated through individual in-depth mapping sessions with 7 obstetricians (n=7) and analyzed thematically. Major themes informed survey development. The resultant survey was distributed to OBs in Edmonton (n=58). Responses were entered into a Research Electronic Data Capture Database and descriptive statistics performed. Ethics approval was obtained.

Results/Conclusions: Obstetrics and Gynecology residents and staff physicians rely on varying subjective measures to classify patients as obese or not. They define and appreciate risk secondary to obesity at different BMI points. While they find it useful, BMI is not routinely used and on its own is insufficient at defining obesity. Clinicians prefer a definition of obesity that incorporates a more comprehensive picture of patient health and wellbeing. This could include medical comorbidities, and specific barriers to care that may provide insight into weight distribution. Establishing a consensus definition and classification of obesity in pregnancy would allow for more standardized care plans to be developed.

Limited education opportunities, lack of specific counseling tools, time constraints and negative bias toward women with obesity in pregnancy all act as barriers to providing evidence-based care to women with obesity. Education strategies addressing these barriers will help empower obstetrics residents to become champions of weight management in the future. Current guidelines do not address many of the areas physicians identify as challenging and important in the care of women with obesity in pregnancy. Revision of national guidelines should incorporate those areas obstetricians deem most crucial to providing high level care.
The SAFE Study: Satisfaction and Adherence to Follow-up with Colposcopy Exams

Sarah Mah, Lori Brotto, Marguerite Boyce, Susan Keast, Arianne Albert, Marette Lee

University of British Columbia

Objectives: Our randomized controlled trial examined effects of delivering colposcopy results through a nurse liaison versus the referring provider on patient anxiety levels (primary outcome) and secondary outcomes: patient satisfaction, knowledge of diagnosis, and 6 month adherence to follow-up.

Methods: 297 consenting women >18 years old presenting for initial appointment at the study colposcopy clinic were randomized 1:1 to intervention arm (nurse liaison - 145 participants) vs. control arm (referring provider - 152 participants). After receiving colposcopy results, participants completed an online questionnaire: validated state-trait anxiety inventory (STAI), health care satisfaction scales (PSQ-18, HAI, VSQ-9), self-reported colposcopy diagnosis and demographics. Chart review at 6 months assessed adherence to follow-up. We compared continuous variables using t-tests, and categorical variables using Fisher’s exact tests. We used regression to compare differences in state anxiety, controlling for diagnosis severity and trait anxiety (STAI-trait scores).

Results: The intervention group had significantly lower state anxiety with STAI-state mean scores 37.3 vs. 40.7 in controls (p=0.03) controlling for severity and trait anxiety. Nurse liaison participants were more likely to correctly report their diagnosis (84% vs. 66.3%, p=0.003). Questionnaire responders were more likely to be in the nurse liaison group and had a higher proportion of high grade pathology (CIN2+). There were no differences in demographics, patient satisfaction or adherence to 6 month follow-up between groups.

Conclusion: Direct delivery of colposcopy results by a trained nurse liaison was associated with decreased patient anxiety around colposcopy results communication, and increased patient knowledge regarding diagnosis. This model may be considered to improve patient-centered care.
MEDICAL MANAGEMENT PRIOR TO HYSTERECTOMY FOR BENIGN INDICATIONS: TRENDS FROM A TERTIARY-CARE CENTRE

Pallavi Sriram, Jacob McGee, Anne I. Gungor, Shannon Arntfield

Department of Obstetrics and Gynaecology, Western University, London, ON

Objective: Women historically had a hysterectomy for benign gynaecological indications (fibroids, abnormal uterine bleeding, pelvic organ prolapse and chronic pelvic pain). Multiple effective medical therapies now exist for all of these indications, with variable use. As various provinces in Canada move towards a quality-based model of funding, this study aimed to understand trends in usage of these medical therapies prior to proceeding to hysterectomy to identify potential areas for quality improvement.

Methods: A retrospective chart review was conducted of all hysterectomies performed for benign indications over a 6-month period at a tertiary care institution focusing on three major areas: medical management prior to proceeding to hysterectomy (how many therapies tried and for how long), pre-operative optimization once hysterectomy was decided and surgical approach (vaginal, laparoscopic or abdominal).

Results: Thirteen percent of women did not have documentation of receiving any counseling about alternative medical therapies. When women were counseled regarding one or more medical therapies, 30% declined to try any of the options and 57% tried at least one. Only 19.9% of women tried more than one form of medical management prior to proceeding to hysterectomy.

Conclusion: Our study indicates that medical management is not being adequately discussed, trialed, and documented in women undergoing hysterectomy for benign indications.
Working twice as hard for half the respect: How Surgical Residents Experience Gender-Based Discrimination

Gabrielle Bonneville, Allison Brown, Sarah Glaze

University of Calgary

Objective: To explore gender-based discrimination (GBD) in post-graduate medical education by answering the research question: ‘What are female surgical residents at the University of Calgary’s experiences of GBD during their postgraduate training?’

Methods: A sequential explanatory mixed methods design was used to combine insights from quantitative and qualitative strands. First, male and female residents across seven surgical programs completed a cross-sectional survey, which was analyzed using descriptive and inferential statistics. Afterward, interviews with 14 female surgical residents were conducted to explore their experiences of GBD, intending to explain the quantitative findings. Data was analyzed using inductive thematic analysis.

Results: Female residents had significantly more frequent experiences of GBD than male residents from every source and setting. Nurses and patients were the most frequent sources, and the emergency room and operating room were the most frequent settings. Many common themes emerged including having to work twice as hard for half the respect as male colleagues, experiences of harassment and bullying from nursing staff, fear of future consequences in reporting these behaviours, and the impact of discrimination on wellness, educational quality, and patient safety.

Conclusion: Female surgical resident experience a concerning frequency of GBD that permeates all aspects of their training. There are several short- and long-term solutions, which can be implemented by academic institutions and departments to address structural barriers in order to promote equitable training environments.
Alterations in Mitochondrial Dynamics in Placentae from Women Who Smoke During Pregnancy

Jonathan Ausman (PGY4), Graeme Smith

Department of Obstetrics and Gynecology, Queen’s University

Objectives: Mitochondrial dynamics describe fission and fusion. Dynamin-related protein 1 (DRP1) is a key player in mitochondrial fission, and when activated (pDRP1), is recruited to the outer mitochondrial membrane (OMM). Optic atrophy 1 (OPA1) is a protein essential for mitochondrial fusion. Our lab is investigating alterations in the mitochondrial dynamic balance in placentae from women who smoke cigarettes in pregnancy. We hypothesize that cigarette smoking is associated with increased mitochondrial fission and decreased fusion protein markers in the placenta, though carbon monoxide (CO) levels may impede translocation of active pDRP1 to the mitochondria.

Methods: Women who smoke in pregnancy and matched controls were recruited from Kingston Health Sciences Centre (Smokers N=6, Controls N=6). Urine cotinine levels were used as an index of smoking status. Protein expression of DRP1/pDRP1 and OPA1 were measured in smoker and control whole-placentae by western blot (WB) analysis. Mitochondrial isolation was achieved through successive centrifugation using a sucrose gradient, which also underwent protein expression analysis for DRP1/pDRP1 and OPA1 by WB. HEK-293 cells were exposed to CO and mitochondrial dynamics markers measured by WB.

Results: Urine cotinine levels verified smoking status in our study population (p<0.0001). A significant decrease in OPA1 protein expression was measured in whole placental samples from smokers versus non-smokers (p<0.05), and this associated with an increase in DRP1 expression (p<0.05). pDRP1 levels in the mitochondrial isolate were significantly decreased in smokers versus controls (p<0.05). pDRP1 expression (p<0.05) was decreased in HEK-293 cells exposed to CO.

Conclusion: Smoking is associated with an alteration in mitochondrial dynamics in the placenta, such that increased mitochondrial fission is associated with decreased mitochondrial fusion in whole placental samples; however, decrease in pDRP1 in the mitochondrial compartment indicates less, activated-mitochondrial fission in smokers. Decreased pDRP1 recruitment to the OMM may indicate that fission activation is inhibited in cigarette smokers (by CO), and may provide insight as to the preventative effect of cigarette smoking in the development of PE.
EVALUATION OF A CLINICAL PROTOCOL FOR THE MANAGEMENT OF FEVER IN LABOR IN PREGNANT WOMEN AT TERM: A PRE-POST COHORT STUDY

Elisabeth Spénard

Université de Montréal

Objectives: Acute chorioamnionitis with or without funisitis occurs in about 1-13% of term pregnancies and can result in serious maternal and neonatal complications. Often over-diagnosed due to the heterogeneity of clinical manifestations, it can lead to unnecessary investigations and treatments, with longer hospitalization. The aim of this study was to compare the incidence of clinical chorioamnionitis and the accuracy of its diagnosis before and after implementing a clinical protocol for the management of fever in labor, based on the adapted Gibbs and al. criteria, as well as the American College of Obstetricians and Gynecologists (ACOG).

Methods: In a tertiary care center, all cases of term pregnancies diagnosed with clinical chorioamnionitis during the year prior to the implementation of the clinical protocol (2015-2016, n=179) and the first year after its implementation (2017-2018, n=142) were retrospectively reviewed. The use of antibiotics, maternal and neonatal outcomes and pathological findings were recorded. The two periods were compared using bivariate analyses. A cost-consequence economic analysis was also performed based on hospital prices.

Results: Incidence of clinical chorioamnionitis decreased from 8.2 to 5.6% birth-year (p<0.001). This was associated with a significant increase in clinical diagnostic accuracy based on the adjusted Gibbs and al. criteria from 60% to 84% (p<0.001) and on ACOG guidelines from 16% to 73% (p<0.001). Tobramycin doses were also better adjusted to patient weight from 16% to 81% (p<0.001). There was a significant decrease in maternal post-partum complications and rehospitalisation episodes, without affecting the incidence of confirmed neonatal sepsis. The protocol was also found to diminish the costs by 23% associated with clinical chorioamnionitis management per year in this center.

Conclusion: The use of a clinical protocol for the management of fever in labor increases the diagnostic accuracy of clinical chorioamnionitis and consequently decreases the misuse of antibiotics in term pregnancies. This tool significantly contributed to diminish the incidence of this condition and diminish the costs associated with its management.
Impact of Surgical Approach on Oncologic Outcomes in Women Undergoing Radical Hysterectomy for Cervical Cancer

Maria C. Cusimano, Nancy N. Baxter, Lilian T. Gien, Rahim Moineddin, Ning Liu, Fahima Dossa, Karla Willows, Sarah E. Ferguson

University of Toronto

Objective: To determine whether surgical approach is associated with oncologic outcomes in cervical cancer patients undergoing minimally invasive (MH) or open radical hysterectomy (OH), while accounting for surgeon volume.

Methods: We performed a population-based cohort study of cervical cancer patients undergoing primary radical hysterectomy by a gynecologic oncologist from 2006-2017 in Ontario, Canada. A multivariable marginal Cox proportional hazards model and cause-specific hazards model were used to evaluate the association of surgical approach with all-cause death and recurrence respectively, clustering at the surgeon level.

Results: We identified 958 patients (MH 475; OH 483) with median follow-up of 6 years. Of MH cases, 89.6% were performed laparoscopically and 10.4% robotically. The unadjusted 5-year cumulative incidences of all-cause death (MH 12.5%; OH 5.4%), cervical cancer death (MH 9.3%; OH 3.3%), and recurrence (MH 16.2%; OH 8.4%) were significantly increased for MH in patients with stage IB disease, but not the cohort overall. After adjusting for patient factors and surgeon volume, MH was associated with increased rates of death (HR 2.20, 95% CI 1.15-4.19) and recurrence (HR 1.97, 95% CI 1.10-3.50) compared to OH in patients with stage IB disease (n=534), but not IA disease (n=244; HR 0.73, 95% CI 0.13-4.01; HR 0.34, 95% CI 0.10-1.10).

Conclusion: MH is associated with increased death and recurrence in stage IB cervical cancer patients even after controlling for surgeon volume; OH should be the recommended approach in this population. Although there may be a subgroup of patients with microscopic early-stage disease for whom MH remains safe, additional studies are required.
Objective: To compare the rates of any breastfeeding at the time of postpartum hospital discharge between early term (37+0-38+6 weeks) and full term (39+0-41+6 weeks) infants.

Methods: A retrospective cohort study of women with live, singleton pregnancies who delivered in St. John’s, Newfoundland and Labrador between April 2001 and March 2018 was completed. The primary outcome was any breastfeeding at the time of postpartum hospital discharge. Secondary analyses included a comparison of breastfeeding by week of gestational age at term, and by maternal/neonatal demographics and outcomes of pregnancy. Univariate and multiple logistic regression (MLR) analyses were performed.

Results: A total of 34,511 women were included. Early term infants were less likely to be breastfed than full term infants (67.9 versus 70.4%) (aOR 0.91; 95% CI 0.86-0.97). MLR analysis also showed a significant effect of maternal age (aOR 1.07; 95% CI 1.05-1.09), partner status (aOR 1.56; 95% CI 1.20-2.03), smoking (aOR 0.32, 95% CI 0.26-0.41), prenatal education (aOR 2.43; 95% CI 1.99-2.97), pre-pregnancy BMI (kg/m^2) (aOR 0.97; 95% CI 0.96-0.98), and Caesarean section (aOR 0.72; 95% CI 0.60-0.88). When compared by week of gestational age at term, the likelihood of breastfeeding significantly increased with each successive week (aOR 1.08; 95% CI 1.007-1.16).

Conclusion: Early term delivery is an independent risk factor for not breastfeeding at the time of postpartum hospital discharge. It is important to target and support these women in order to increase breastfeeding rates. Additionally, these findings further validate recommendations to avoid non-medically indicated early term deliveries due to increased risks of adverse outcomes.
Fetal Brain MicroARNs in Umbilical Cord Blood and Amniotic Fluid: Promising Non-invasive Biomarkers

Dr. Jessica Morin, PGY4 Obstetrics and Gynecology, Virginie Gillet, MSc, Scientific research assistant, Obstetrics and Gynecology Department, Dr. Annie Ouellet, MD, Associate professor, Obstetrics and Gynecology Department, Head of the Fetal and Maternal Medicine division, Dr. Larissa Takser, MD, PhD, Professor, Pediatrics Department

Université de Sherbrooke

Background/Introduction: Brain is the organ that expresses the most microRNAs, which are intercellular communication tools with an implication in all cellular processes. MicroRNAs have been reported as biomarkers of pathologic antenatal expositions or processes specific to the fetus in a few studies. The objective of this study is to isolate fetal microRNAs specific to cerebral cells in umbilical cord blood and amniotic fluid witch has never been done before.

Methodology: This project is a proof of concept technical study. Eight patients were recruited at admission for an elective caesarean section at term. Arterial and venous umbilical cord blood and amniotic fluid were collected during the surgery, after cord clamping. Detection of fetal cerebral specific protein, contractine-2/TAG1, was used to isolate fetal brain exosomes in these fluids. Then, brain specific miRNAs from those exosomes were extracted and quantified at the Rnomic platform in Sherbrooke: miR-124-3p, hsa-miR-134-5p, miR-219a-1-3p, hsa-miR-9-5p. To confirm fetal origin, four women of reproductive ages were recruited as negative controls.

Results: Presence of fetal brain exosomes, positive for contactin-2/TAG1, was shown by electron microscopy in cord blood and amniotic fluid, with higher proportion in cord blood. Exosomes positive for contactin2/TAG1 were not present in non-pregnant women samples. Brain specific miRNAs were detected and quantified in all fluid samples.

Conclusion/Discussion: We successfully demonstrated the presence of fetal brain specific exosomes and microRNAs in all fluids analysed except in the non-pregnant women. These results support the fetal origin of the brain exosomes and microRNAs isolated. Interestingly, three of the miRNAs analysed were found in higher quantities in exosomes released in arterial cord blood, witch also support their fetal origin. This innovative study opens the door to many uses of cerebral microRNAs as non-invasive biomarkers. Future researches should allow us to use them to monitor brain development following various antenatal insults.
Mapping the Health Advocate Curriculum Across Post Graduate Medical Education Programs: a Focus on OBGYN

Dalia Karol, Kaitlin Endres, Daniel Weiman, Sarah Burm, Lindsay Cowley, Nancy Dudek, Kori LaDonna

University of Ottawa

Objectives: Residents in OBGYN express interest in women’s health advocacy, and are aware that health advocate (HA) is a CanMeds role, but only approximately half of these residents understand how to fulfill this role. By understanding how programs conceptualize and train the HA role, we may be able to develop more robust pedagogical strategies to meet learners’ training needs.

Method: We conducted a content analysis of curricular documents across Ontario’s OBGYN PGME programs. Three of five programs were represented. Objectives were thematically grouped based on key competencies for the HA role, then compared across schools. Objectives that did not readily fit these competencies were analyzed separately.

Results: We identified inconsistencies across OBGYN programs regarding the comprehensiveness and specificity of HA objectives. Some objectives were vague and nebulous, while others were clear, detailed, and linked to specific clinical activities. Examples of specific HA objectives, related to HPV, and abortion advocacy. HA objectives often required solely understanding, without any progression to action from the Junior years to the Senior years. While some objectives seemed misaligned with the CanMeds definition of HA, such as providing informed consent for surgery.

Conclusion: The unclear relationship of some objectives to the HA role, coupled with variability in the specificity of objectives, left us wondering how residents passionate about women’s health advocacy, will demonstrate their understanding of HA in their respective program. Moving forward, we will interview OBGYN educators to clarify expectations, and identify opportunities for improving teaching and learning of this difficult to distinguish role.

Safia Marani, Maria Ospina, Jesus Serrano-Lomelin, Rhonda Rosychuk, Brian Rowe, Radha Chari, Susan Crawford, Susan Jelinski, Amy Metcalfe

University of Calgary

Objectives: Pregnant and postpartum women are frequent users of emergency departments (ED), potentially representing pregnancy complications and inadequate perinatal care. This study describes characteristics of perinatal women that affect costs of visits in EDs in Alberta.

Method: In this population-based, retrospective cohort study, de-identified data for each ED visit corresponding to a delivery (>20 weeks) from 2013-2017, were obtained via data linkage. Costs per visit were calculated based on established standard resource consumption values, accounting for institution, inflation rates, diagnosis, and resource utilization. A multiple linear regression analysis identified predictors of cost for perinatal ED visits.

Results: Overall, 193,965 (51%) women visited the ED. Mean cost per visit was $364.01 (n= 229,680 visits). Mean cost per visit between pregnancy and post-partum period (pregnancy $366.04; post-partum $361.52), between trimesters (second trimester $352.50; third trimester $374.08), and immediately (up to 6 weeks) post-partum ($393.66) were found to be statistically significant (p<0.01); however, these cost differences are small, and likely not clinically or fiscally important. Advanced maternal age, pre-term deliveries, non-singleton pregnancies, inpatient admission, diagnosis from ICD-10-chapter III, emergent triage scores, and length of stay (>6 hours) were associated with statistically significant increases in MCPV and predictors of ED cost.

Conclusion: Our findings demonstrate various factors contributing to the cost of ED visits, including high risk pregnancies, and potential gaps in access, quality and equity of prenatal and postnatal care. Further research should explore strategies to reduce ED visits in the peripartum period in an effort to reallocate resources towards optimizing prenatal and postnatal outcomes.
Making Immediate Post-Placental Intrauterine Devices (IPPI) Accessible to Women Desiring Long-Acting Reversible Contraception after Childbirth

Marie Jones, Sheona Mitchell-Foster,
University Hospital of Northern British Columbia

Objectives: IPPIs are a safe and effective method of contraception or birth spacing, however, their uptake in Canada is low. This technique, whereby the intrauterine device (IUD) is placed at the time of delivery or caesarian section, could benefit any women, including those living in remote geographies or with difficulty accessing care. The overall goal is to make IPPI an accessible option for any women. The objective of this project is to identify the barriers to implementing IPPI.

Method: Semi-structured one-on-one interviews were conducted with six voluntary healthcare providers who work in the maternity ward. Participants included Nurses, Obstetricians, Family Physicians, and Midwives. One participant responded in a written format. Themes were extracted from the data and word-cloud analyses were created based on theme frequency. One addressed "who could benefit from IPPI", and the other addressed "what are the barriers to IPPI".

Results: Barriers to IPPI implementation included: healthcare provider factors (staff education/training, billing code), logistical factors (IUD not on hospital formulary, storage, equipment, time, availability of provider, patient needing to bring the IUD, staffing availability) and patient factors (IUD cost, patient education, patient fear). "All women" was the most frequent answer for who could benefit from IPPI.

Conclusion: Barriers to IPPI included healthcare provider, logistical, and potential patient factors. There was an identified need for education for all members of the interdisciplinary maternity healthcare team. In order to address these barriers, a workshop has been developed, logistic troubleshooting has begun, and a subsequent study to better understand patient perspectives is being started.
Competency Based Objectives for Ultrasound in Canadian Obstetrics and Gynaecology Residency

Navi Bal, Jillian Coolen

Dalhousie University

Objectives: Canadian Obstetrics and Gynaecology (OB/GYN) residency training programs have moved to a competence-based approach. The purpose of this project was to determine the ultrasound competencies that residents should obtain in OB/GYN residency such that entrustable professional activities (EPAs) can be developed.

Method: A modified Delphi method was used to achieve consensus in two rounds by surveying expert OB/GYN educators from all 16 accredited Canadian OB/GYN residency programs. The survey consisted a comprehensive list of ultrasound objectives. A consensus rate of 75% was agreed upon. Survey results were collected over 7 months in 2019.

Results: Response rates for the first round were 31%, and for the second round were 49%. The first survey consisted of 59 competencies. The second survey consisted of 43 competencies (27% reduction). At the end of the second survey, 20 competencies remained that experts believed should be obtained in residency (66% reduction).

Conclusion: This study established a national consensus defining 20 ultrasound competencies for OB/GYN residency training programs in Canada. These competencies can assist medical educators in creating and/or modifying EPAs.
Standing Up to Block: Validating a Novel Ob/Gyn LIC Curriculum at the University of Toronto

Eliane Shore, Alexandra Davidson, Rajiv Shah, Anita Shah, Lindsay Shirreff

University of Toronto

Objectives: Longitudinal Integrated Clerkship (LIC) was introduced at University of Toronto in 2014. A novel Obstetrics and Gynecology (Ob/Gyn) curriculum was designed to incorporate both ambulatory and in-patient experiences into a new formal teaching program. LIC students are assessed midway through the academic year, whereas Block students are assessed at the end of their six-week rotation. However, both streams of students take equivalent examinations. The purpose of this study was to assess the validity of our Ob/Gyn LIC when compared to the existing Block clerkship.

Method: Written, oral, and clinical examination scores from September 2014 to March 2018 were compared between LIC and Block students. Specifically, grade comparisons were made between students in the same academic year, between years, and between hospital sites (n=4).

Results: Eighty-nine LIC students and 797 Block students were compared. There were no statistical differences between LIC and Block clinical and oral examination scores (Clinical: 81.0% vs 81.2%, Oral: 83.9% vs 84.4%, p>0.05). However, Block students did perform significantly better on written exams (83.0% vs 79.5%, p<0.01) and LIC students at one hospital site showed significantly higher oral examination scores compared to all other sites (89.0% vs 82.0% vs 83.0% vs 81.6%, p<0.05).

Conclusion: Our LIC curriculum prepares students as well as their Block peers for assessments, but students in the LIC program have the added advantage of longitudinal relations with faculty and patients. Thus, we have validated our Ob/Gyn LIC program and anticipate that our curriculum can be appropriately modelled at other teaching institutions.
A Review of Obstetrics & Gynecology Training Objectives for a Novel Global Surgery Fellowship Program

Kimia Sorouri, Louise Chong, Abdullah Saleh

University of Alberta

Objectives: Interest in global surgery has dramatically increased in the past decade, particularly among resident trainees. The 2013 Lancet Commission identifies Obstetrics and Gynecology (OB/GYN) as a key component of the global surgery workforce. The aim of this study is to describe the curriculum of existing OB/GYN fellowship programs offering competencies in global health. The study will inform the development of learning objectives to be incorporated into a one-year Acute Care and Global Surgery Fellowship at the University of Alberta, the first of its kind in Canada.

Method: A literature search was conducted of PubMed, MEDLINE, and Embase for articles pertaining to fellowship training in OB/GYN that include global health competencies.

Results: The search revealed 50 articles with 16 articles included in the full-text review, 8 of which met our eligibility criteria. Most fellowship programs reviewed utilized didactic teaching (n=5), with a small proportion offering simulations (n=3) and/or practical experiences (n=3). The following topics were identified as objectives in existing OB/GYN fellowships with global health training: complicated vaginal deliveries (n=4), family planning (safe abortions, n=4), hypertensive disorders of pregnancy (n=3), cesarean sections (n=3), gynecologic oncology (surgical intervention for early cervical cancer, n=3), hysterectomies (n=2), operative vaginal deliveries (n=2), and post-partum hemorrhage (n=2).

Conclusion: This study demonstrates the lack of existing specialized training relevant to caring for obstetrical and gynecologic conditions in the global health context. The educational objectives identified in this study can serve as a foundation in the curriculum development of a novel fellowship program within the emerging field of global surgery.
Health Concerns of Female Genital Mutilation/Cutting (FGM/C) Among African Women in Toronto

Jacobet Edith Wambayi, Jacobet Edith Wambayi, Gillian Einstein, Christiana Patrick, Fatuma Swaleh, Falastin Yassin, Jennifer Muyia, Ebby Madera,

Uzima Women Relief Group International

Objectives: To learn about the experiences and health concerns of FGM among African women in Toronto. To create awareness about the health risks of FGM.

Method: Surveys and focus groups were used to collect data from 21 women aged 18 – 55 years from African countries where FGM/C is practiced, 8 community leaders and 11 service providers. There were separate questionnaires for each category. Demographic data was collected as well as responses to questions on knowledge of FGM/C and experience, health issues experienced by women and whether issues were being addressed adequately, and knowledge of the Law against FGM/C.

Results: 95% (20/21) of women experienced FGM/C done outside a hospital. All women expressed concern about the harm associated with the practice: psychological trauma, bleeding, difficulties giving birth and sometimes death. 66% (14/21) said they were not satisfied with services due to reasons such as Doctors not taking time to listen to their needs especially not asking about FGM/C. Many women do not go for Pap smear. 71% (5/7) women felt FGM/C was not being addressed by local agencies. Social concerns included talking about FGM/C outside of cultural group, relationship stigmatization, infidelity and divorce. Participants became aware of the Law against FGM/C but felt that it is not being fully enforced in Canada.

Conclusion: FGM/C is a violation of women’s, girls’ and children’s rights. There is an urgent need for awareness campaign to end FGM/C. The public needs to know about the Law against FGM/C and how to enforce it.
Effect of a surgical teaching video on resident performance of a laparoscopic salpingo-oophorectomy – a randomized controlled trial.

Sarah Norris, Jessica Papillon-Smith, Louise-Helene Gagnon, Michelle Jacobson, Mara Sobel, Eliane Shore, University of Toronto

Objectives: To assess the effect of a surgical teaching video on resident knowledge and performance of a laparoscopic salpingo-oophorectomy (LSO).

Method: A randomized controlled trial was conducted with first and second year gynaecology residents at the University of Toronto. Participants were assigned to either the video group or to the traditional training group. Participants completed a demographic survey and knowledge questionnaire preceding their performance of an LSO in the operating room. Video recordings of surgical performance were analyzed by two blinded raters using the objective structured assessment of technical skills OSATS (20 points) and a LSO specific tool (30 points). Participants completed a self-assessment questionnaire following the procedure.

Results: Twenty-four residents were recruited and equally distributed between groups. There were no significant differences between their demographic variables. For the primary outcome, there were no significant differences in mean OSATS scores (10.64, SD 2.05 vs 11.55, SD 1.85, p=0.3) or LSO specific tool scores (16.45, SD 2.68 vs 17.85, SD 2.63, p=0.24). However, there was a significant difference in mean knowledge scores between the video (8.42, SD 0.79) and the traditional training (7.11, SD 1.36, p=0.01) groups. In addition, residents in the video group had more confidence of their pelvic anatomy knowledge (3.83/5, SD 0.39 vs 3.00, SD 1.00, p=0.04).

Conclusion: For junior learners, use of a LSO video improved knowledge and confidence in anatomy but did not translate to improved surgical performance in the operating room. Surgical videos are a useful adjunct and compliment hands-on technical teaching.
Severe Postpartum Femoral Neuropathy: A Case Series

Kammie Chow, Karen Wong, Atamjit Gill,

Memorial University, Faculty of Medicine

Objectives: This case series will provide guidance to the obstetric community regarding the diagnosis, investigation, management and recovery process for postpartum femoral neuropathy.

Method: Three patients presenting to a tertiary centre in St. John’s, Newfoundland between January 2016 and May 2018 were reviewed. Information regarding the patients’ pregnancy, labour, and recovery process were collected from medical records as well as patient interviews.

Results: All three patients were nulliparous with a mean age of 32 years and mean pre-pregnancy BMI of 24. All patients received an epidural, as well as oxytocin augmentation. Active second stage duration ranged from 1 hour 10 minutes to 3 hours 17 minutes. All patients were diagnosed with bilateral femoral neuropathy by Neurology and underwent nerve conduction studies (NCS) as well as electromyography (EMG). Recovery time ranged from 6 months to 2 years for sensory loss and 3 to 6 months for motor loss. All patients received physiotherapy follow up, as well as mobility aids arranged by occupational therapy.

Conclusion: Postpartum femoral neuropathy is a rare complication diagnosed clinically and confirmed with NCS/EMG 1-3 weeks after onset of injury. Management requires a multidisciplinary approach with neurology, psychology, physiotherapy and occupational therapy services. Possible prevention strategies include careful positioning of patient with frequent readjustments during the second stage of labour.
Mode of delivery: Development and implementation of an obstetrical in situ simulation program

Valerie Bloomfield, Susan Ellis, Michelle Morais

McMaster University

Objectives: Simulation is valued as a teaching and learning tool in obstetrics. In situ simulation assesses the hands-on and critical thinking skills of a team within their clinical setting. We aimed to create an in situ simulation program to promote skill acquisition, enhance team work and identify underlying system limitations.

Method: Key obstetrical emergencies were identified through a needs assessment. In situ simulations were developed to address these clinical presentations. Latent safety threats were identified by organizers and participants. Medical management was evaluated through comprehensive emergency specific checklists. Leadership attitudes were assessed using the modified Perinatal Emergency Team Response Assessment tool. Following each simulation, team members were debriefed and qualitative and quantitative feedback was solicited and aggregated by specialty and discipline.

Results: Simulations were conducted monthly at two academic centers over 14 months. Multidisciplinary participation included medical learners, staff physicians, nursing, and allied health from Obstetrics, Anesthesia and Neonatology. Overall, participants reported their involvement was enjoyable. Participants reported improved communication skills, content knowledge and procedural knowledge. Participants rated the spontaneity of simulations, clinically relevant scenarios, safe learning environment and use of realistic equipment favourably. Latent safety threats were identified relating to equipment, medication, personnel, resources and technical skills.

Conclusion: We present the successful implementation of a comprehensive in situ simulation program in two busy academic centers. In situ simulation allows for deliberate practice of obstetrical emergencies and promotes a culture of patient safety and collaborative care. The lessons learned serve as valuable data to identify limitations within current practices and inform future policy change.
Does the gender make different, a study on obstetrician-gynecologists residency trainees in China

Zhan Li, Zhan Li

Chao-Yang Hospital, Capital Medical University

Objectives: The purpose of this study was to analysis the evolution and characteristics of male obstetrician-gynecologists receiving residency training in China.

Method: A retrospective cohort study for gender differences, through questionnaires on male obstetrician-gynecologists receiving residency training, compared with the same period of female obstetricians and gynecologists.

Results: 102 obstetrician-gynecologists, from 16 hospitals and maternal and child health institutions in different regions were included in this study (mean age 32.3 years), in 20 variables during and after the residency training, (including gender identity, self-assessment, working hours, chances for operational and clinical practice, preference from Instructors and patients, choices for subspecialties, opportunities for further study and promotion, time for building families and having children) were evaluated, 4 variables (including working hours, choices for subspecialties, time for building families and having children) showed significant differences between genders, and in male physicians, 13 variables (including self-assessment, working hours, chances for operational and clinical practice, preference from Instructors and patients, choices for subspecialties, opportunities for further study and promotion, time for building families and having children) were significant difference between the training times or practice years, and no significant differences in the aspects of hospital level and regional

Conclusion: Small differences in characteristics between men and women were demonstrated in a survey of young obstetrician-gynecologists in China based on residency training system. Changing demographics and behaviors of the shows more pragmatic, humanized and positive trending in male doctors.