Poster Sessions

Tuesday, May 8, 2012
San Diego, CA
# Contents

**Contraception/Family Planning** .................................................................................................................... 6

- Evidence-Based Use of the Levonorgestrel IUD Among Obstetrician Gynecologists and Family Physicians .......................................................................................................................... 6
- A Needs Assessment for a Family Planning Curriculum at a University-Based Ob-Gyn Residency Program ............................................................................................................................................. 7
- Postpartum Intrauterine Device Compliance .................................................................................................. 7
- Unscheduled Postprocedure Visits in Medical Versus Surgical Abortions in a California HMO Setting ........................................................................................................................................... 8
- Delayed Versus Immediate Postpartum Intrauterine Device Placement: A Randomized, Controlled Trial ......................................................................................................................................................... 9
- The Reproductive Experiences of Homeless Women: A Mixed-Methods Study ............................................ 9
- Postplacental Versus Delayed Postpartum Intrauterine Device Insertion: A Decision Analysis .................... 10
- A Survey of Health Literacy in an Indigent Population and its Effects on Sexual Health Behaviors ............ 11
- Intrauterine Device Discontinuation in an Urban Clinic Setting ................................................................. 12
- Contraceptive Knowledge Among Women Seeking Termination of Pregnancy ............................................ 12
- Intracervical Lidocaine Gel for Pain Control with Intrauterine Device Insertion: A Randomized Controlled Trial .................................................................................................................................................... 13
- Reduction of Menstrual Pain in Women Treated With the Oral Contraceptives NOMAC/E2 or DRSP/EE ...................................................................................................................................................... 14

**Education** .................................................................................................................................................... 15

- Can Surgical Preceptorship Change Minimally Invasive Hysterectomy Rates? ........................................... 15
- Palliative Medicine Educational Initiative for Trainees in Obstetrics, Gynecology and Women’s Health .................................................................................................................................................... 16
- A Postpartum Hemorrhage Quality Care Initiative to Reduce Maternal Mortality in Los Angeles County ..................................................................................................................................................... 17
- Accuracy of Measurements When Using Open Versus Blinded Simulated Cervical Dilation Models ......... 17
- Characteristics of a Hospital System Based Social Media Platform .............................................................. 18

**Ethics/Professional Liability/Risk Management** .......................................................................................... 19

- Effectiveness of a Quality Improvement and Patient Safety Initiative for Appropriate Oxytocin Usage .................................................................................................................................................. 19
- A Three-Year Journey to Zero Retained Sponges ......................................................................................... 20
- Drive Times to Hospitals Offering Maternity Care in the United States .................................................... 21
- County Distribution of Obstetricians-Gynecologists in the United States ................................................ 22
- Safety Culture in the Gynecology Robotics Operating Room .................................................................. 22

**Gynecology** .................................................................................................................................................. 23

- Influence of Leiomyoma Type, Number and Size Upon Menstrual Blood Loss in Patients with Menorrhagia ........................................................................................................................................... 23
Access to Conservative Surgical Therapy in Adolescents with Benign Ovarian Masses ........................................ 24
Quality Clinical Outcomes For Hysterectomy: Readmission Rates By Route .................................................. 25
Follow-Up Findings on Patients with Cervical Dysplasia and Negative LEEP Conization ............................ 25
Bone Morphological Protein in Human Endometrium ....................................................................................... 26
Hysteroscopic Removal of Cervical Ectopic Pregnancy Following Failed Intramuscular/Intrasac.............. 27
A Study of Readmissions Within 30 days in Patients Having a Hysterectomy: Does Robotics Improve Outcomes? .............................................................................................................................................. 27
An Analysis of Quality Outcomes in Patients Having a Hysterectomy: Robotics Versus the Vaginal Approach ........................................................................................................................................ 28
Advanced Operative Laparoscopy in Ambulatory Setting ................................................................................. 29
Modified Laparoscopic Radical Hysterectomy in Treatment of Severe Endometriosis ................................. 29
Abdominoplasty at the Time of Hysterectomy: Assessment of Perioperative Morbidity ................................. 30
Improved Prediction of Endometriosis - DNA Markers Combined With Clinical Risk Factors ............... 31
Optimal Combination of Cervical Spectroscopy with Cytology and Human Papillomavirus: Implications for Clinic Efficiency ........................................................................................................................................ 31
Infectious Diseases ............................................................................................................................................. 32
Completion of Human Papilllovirus Vaccination Series Lags in Somali Adolescents ..................................... 32
Ultrasound Findings of Congenital Syphilis and Timeline to Resolution After Penicillin Therapy .......... 33
Patient Perspectives of Flu Vaccination and H1N1 Vaccination in Pregnancy .................................................. 34
Menopause ......................................................................................................................................................... 34
Effects of Kamishoyosan (Japanese Herbal Medicine) for Climacteric Disorders Compared With Hormone Therapy ........................................................................................................................................ 34
Obstetrics ............................................................................................................................................................ 35
Attempted and Successful TOLAC Following New ACOG Guidelines: Patient Characteristics ................. 35
Systemic Review of Basal Bolus Insulin Analogue Therapy in Pregnancy ......................................................... 36
Fetal Movement Education Among U.S. Ob-Gyn Providers: A Nationally Representative Survey ............. 37
Racial Disparities and Gestational Age at Delivery of Twin Gestations .......................................................... 37
Prophylactic Antibiotics for Prevention of Endometritis Following Manual Extraction of the Placenta .... 38
Neonatal Outcomes of Late-Preterm Birth: A Community Hospital Experience ......................................... 39
Cervical Cerclage: A Retrospective Review of Preoperative Indications and Pregnancy Outcomes ....... 39
Providers’ Perceptions of Counseling Regarding Extremely Preterm Birth: A Qualitative Approach ....... 40
Proteomics of Preeclamptic Placenta .................................................................................................................. 41
Differences in Twin Delivery Case Mix at a Teaching Hospital Compared With Local Regions .......... 42
Negative Pressure Wound Therapy to Prevent Postcesarean Complications in Morbidly Obese Women ................................................................. 42
Perinatal Mortality of Planned Out of Hospital Births Transferred to an Oregon Hospital, 2004-2008 43
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited Course of Antibiotic Treatment for Chorioamnionitis</td>
<td>44</td>
</tr>
<tr>
<td>Closure of Pfannenstiel Skin Incisions at Cesarean Delivery: Metallic Versus Absorbable Staples</td>
<td>45</td>
</tr>
<tr>
<td>Induction of Labor in Women With a History of Fast Labor</td>
<td>45</td>
</tr>
<tr>
<td>Bioactivity of Serum hCG in Preeclampsia and its Pregnancy Curve</td>
<td>46</td>
</tr>
<tr>
<td>Timing of Delivery and Maternal and Neonatal Outcomes</td>
<td>47</td>
</tr>
<tr>
<td>The Affect of Team Training on the Rate of Neonatal Brachial Plexus Injury</td>
<td>47</td>
</tr>
<tr>
<td>Safety Concerns About Physical Activity Among Pregnant Women</td>
<td>48</td>
</tr>
<tr>
<td>Measuring the Impact of Obstetricians on Maternal Health Outcomes and Referral Networks in Ghana</td>
<td>49</td>
</tr>
<tr>
<td>Gestational Weight Change in Obese Women and Perinatal Outcome</td>
<td>50</td>
</tr>
<tr>
<td>Risk Factors for Preterm Twin Delivery Vary by Gestational Age</td>
<td>51</td>
</tr>
<tr>
<td>Evaluating the Safety of Seprafilm® During Cesarean Delivery: A Randomized Trial</td>
<td>51</td>
</tr>
<tr>
<td>Non-Stress Testing and Maternal Perception of Movement in Twin Pregancies</td>
<td>52</td>
</tr>
<tr>
<td>The Increasing Cesarean Delivery Rate: A Contributor to Preterm Birth?</td>
<td>53</td>
</tr>
<tr>
<td>Is There An Increased Risk of Preterm Birth in Adolescents With Antenatal Depressive Symptoms</td>
<td>53</td>
</tr>
<tr>
<td>Are there More Obstetrical Complications Associated With Teenage (Younger Than 16 Years) Pregnancy?</td>
<td>54</td>
</tr>
<tr>
<td>Predictors of Peripartum Blood Transfusion in Cesarean Section Patients: A Retrospective Review</td>
<td>55</td>
</tr>
<tr>
<td>Obesity Decreases the Success of Labor Induction</td>
<td>56</td>
</tr>
<tr>
<td>Is Routine Third-Trimester Ultrasonography Useful for the Prediction of Shoulder Dystocia?</td>
<td>56</td>
</tr>
<tr>
<td>External Cephalic Version: A Comparison of Singleton Versus Noncephalic Twin A ECV</td>
<td>57</td>
</tr>
<tr>
<td>Outpatient Misoprostol in the Management of Postterm Pregancies</td>
<td>58</td>
</tr>
<tr>
<td>Does Body Mass Index Affect Preinduction Cervical Ripening?</td>
<td>58</td>
</tr>
<tr>
<td>Maternal Perception of Fetal Movement in Twin Pregancies</td>
<td>59</td>
</tr>
<tr>
<td>Increased Cesarean Delivery in Diabetic Women With Elevated HgbA1c Levels</td>
<td>60</td>
</tr>
<tr>
<td>Shifting the Curve of Gestational Age at Delivery with 17P</td>
<td>61</td>
</tr>
<tr>
<td>Accuracy of Intrapartum Bladder Volume Estimation Using the Bladderscan Machine</td>
<td>62</td>
</tr>
<tr>
<td>Pregestational Insulin Resistance as a Risk Factor for Preeclampsia: A Case-Control Study</td>
<td>62</td>
</tr>
<tr>
<td>Comparison Of Data Collection Techniques In Reporting Elective Deliveries</td>
<td>63</td>
</tr>
<tr>
<td>Outcome of Twin Pregnancies Complicated by Fetal Growth Restriction (IUGR) and Discordance</td>
<td>64</td>
</tr>
<tr>
<td>Office Practice</td>
<td>64</td>
</tr>
<tr>
<td>What Do Women Want? Survey of an Academic Center Employees’ About Their Provider Choices</td>
<td>64</td>
</tr>
<tr>
<td>Use of Electronic Medical Record Based Tools to Improve Compliance With Cervical Cancer Screening</td>
<td>64</td>
</tr>
<tr>
<td>Knowledge of Cervical Cytology ASCCP Guidelines in Three University Hospitals in Puerto Rico</td>
<td>66</td>
</tr>
<tr>
<td>Improving Gardasil Vaccination Rates</td>
<td>67</td>
</tr>
</tbody>
</table>
Kerry Rut, DO ........................................................................................................................................... 67

Oncology .......................................................................................................................................................... 67
  Fear of Recurrence Among Ovarian Cancer Survivors .............................................................................. 67
  Outcomes of Hysterectomy via Robotic Versus Laparotomy in Elderly ......................................................... 68
  Annual Cost to the U.S. Medicare System of Bevacizumab in the Adjuvant Treatment of Ovarian Cancer ..................................................................................................................................................... 69

Primary Care .................................................................................................................................................. 69
  The Effect of Parity on Weight Gain Over Time ............................................................................................ 69

Reproductive Endocrinology/Infertility ........................................................................................................... 70
  Gestational Outcome of 875 Pregnancies Following Hysteroscopic Lysis of Intrauterine Adhesions .... 70
  Improved Accuracy of Noninvasive Prenatal Detection of Trisomy 21 by Using Parental Genotypes ... 71
  Selection Criteria and Outcomes for Gestational Surrogates Compared With In Vitro Fertilization Controls at a Tertiary Care Center ......................................................................................................................................................... 72
  Targeted Sequencing Approach for Noninvasive Detection of Chromosome Aneuploidy .................... 72

Ultrasound ...................................................................................................................................................... 73
  Single Deepest Vertical Pocket At Midtrimester: Correlation With Traditional 4 Quadrant AFI? .......... 73
  The Role of Ultrasound in the Evaluation of Pelvic Pain ........................................................................... 74
  Adnexal Masses in Pregnancy: A University Hospital Experience .......................................................... 75

Urogynecology .................................................................................................................................................. 75
  Stem Cell Trafficking in an Animal Model of Interstitial Cystitis ............................................................... 76
Evidence-Based Use of the Levonorgestrel IUD Among Obstetrician Gynecologists and Family Physicians

Lisa S. Callegari, MD
University of Washington, Seattle, Washington
Blair G. Darney, MPH; Sarah W. Prager, MD

Introduction: The levonorgestrel intrauterine device (LNG-IUS) is a highly effective, safe form of reversible contraception that is underutilized in the US. Recent evidence-based guidelines expanded the definition of appropriate candidates for use, but restrictive practice patterns among providers persist. We compared knowledge, attitudes and practices of obstetrician-gynecologists (ob-gyns) and family physicians (FPs) and identified correlates of following evidence-based guidelines.

Methods: We mailed an anonymous, self-administered questionnaire to all practicing OBGYNs and FPs in Seattle and used multivariable logistic regression to assess associations.

Results: Knowledge, attitudes and willingness to follow evidence-based guidelines among ob-gyn and FP inserters of LNG-IUS were similar overall. Three-quarters of ob-gyns and FPs correctly identified both the failure rate and recommended length of use (163/217). One-half of respondents routinely recommend LNG-IUS to nulliparous women (121/217), and one third to women under 20 (80/217), with a history of sexually transmitted diseases/pelvic inflammatory disease (STDs/PID) (82/217) or with a history of ectopic pregnancy (81/217). Training residents was positively associated with recommending LNG-IUS to women with a history of STDs/PID (odds ratio [OR] = 3.7, confidence interval [CI] = 1.6-8.4), ectopic pregnancy (OR = 3.1, CI = 1.3-7) or under 20 years of age (OR = 3.6, CI = 1.6-8). Perceived risk of STDs/PID/infertility from LNG-IUS use was negatively associated with recommending it to women who are nulliparous (OR = 0.2, CI 0.1-0.5), have a history of STDs/PID (OR = 0.3, CI 0.1-0.8) or ectopic pregnancy (OR = 0.4, CI 0.2-0.9). Conclusions: Gaps in knowledge and restrictive practice patterns persist among LNG-IUS inserters, less so in physicians involved in resident training. Eliminating misperceptions about risk of STDs/PID/infertility with LNG-IUS use is essential in promoting wider use.

Disclosure: Lisa S. Callegari, MD; Blair G. Darney, MPH - These authors have no conflicts of interest to disclose relative to the contents of this presentation. Sarah W. Prager, MD - This author has relevant financial relationships with the following commercial interests: Consultant: Population Services International; Implanon/Nexplanon trainer gratis.
A Needs Assessment for a Family Planning Curriculum at a University-Based Ob-Gyn Residency Program

Tiffany M. Forti, MD, MPH
University of Massachusetts Memorial Medical Center, Worcester, Massachusetts
Mark J. Manning, DO, MEd

Objective: To conduct a targeted Needs Assessment in order to develop a family planning curriculum for the Obstetrics and Gynecology Residency Program at the University of Massachusetts that meets the objectives set forth by the Accreditation Council for Graduate Medical Education (ACGME) Program for Resident Education in Obstetrics and Gynecology. Methods: A Needs Assessment was performed by surveying the residents and faculty of the University of Massachusetts Department of Obstetrics and Gynecology. Using the Needs Assessment survey data and a well studied six step approach to medical education curriculum, a family planning curriculum was developed. Results: 96% of faculty strongly believe family planning is an important part of residency training and 61% of residents feel so. Greater than 60% of residents and faculty strongly feel there should be a dedicated curriculum. Neither residents nor faculty agree that there is sufficient training in family planning in the current curriculum. Less than 6% of residents feel strongly that they are competent in counseling patients in medical abortion. Not one resident felt strongly that they are competent in counseling in adoption. Fifty percent of residents strongly agree they are competent in contraception. Conclusion: The residents and faculty of a university based program have recognized a need for family planning training. A three pronged didactic, clinical and surgical curriculum will address the identified needs and meet the cognitive and psychomotor goals and objectives as outlined by the ACGME and CREOG for family planning training in an obstetrics and gynecology residency program.

Disclosure: Tiffany M. Forti, MD, MPH; Mark J. Manning, DO, MEd - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Postpartum Intrauterine Device Compliance

Alhambra Frarey, MD
University of Kansas, Prairie Village, Kansas
Carrie L. Wieneke, MD; Laura Delcore

Objective: To determine the proportion of postpartum women selecting intrauterine device (IUD) at The University of Kansas (KU), compliance with postpartum visit follow-up and ultimate IUD placement, as well as associated patient variables. Methods: KU Labor and Delivery records from June 1, 2009 to May 31, 2010, were used to identify women who delivered over 20 weeks gestation. Patient demographics and contraception method selection were documented. Postpartum charts for those women that chose IUD were reviewed to determine compliance with follow-up visits and delayed placement of IUD. Results: 1,539 women delivered over 20 weeks gestation during this time period. Of those, 106 women chose IUD contraception. The compliance rate for postpartum follow-up visits was 90%. Thirty-six women did not return for their postpartum visit, and 5 of those women ultimately placed their IUD. Nineteen women returned for a postpartum visit but did not receive their IUD. Conclusion: The compliance rate for postpartum visits and ultimate placement of IUD was lower than expected. Further education and follow-up processes are necessary to improve postpartum compliance with IUD contraception.

© 2012 The American College of Obstetricians and Gynecologists Tuesday Posters
20 weeks gestation. 298 (19.4%) women requested an IUD upon discharge, 208 (69.8%) returned for a postpartum visit, and 128 women (43.0%) ultimately had an IUD placed within 6 months. Among those women that returned for a postpartum visit, 61.6% had the IUD inserted. There were no identifiable variables that influenced whether a patient returned for a post partum visit and subsequent delayed IUD insertion. Conclusion: We were unable to predict which patients that requested an IUD will be compliant with postpartum visits and ultimately delayed IUD insertion at KU. Research is needed to evaluate effectiveness of increased patient education and potential means of facilitating follow-up to improve compliance with office visits and therefore IUD insertion. In addition, as only 43% of women had the IUD placed within 6 months, immediate postplacental insertion may be an alternative.

Disclosure: Alhambra Frarey, MD; Carrie L. Wieneke, MD; Laura Delcore - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Unscheduled Postprocedure Visits in Medical Versus Surgical Abortions in a California HMO Setting

Tara D. Hulbert, DO
Kaiser Permanente Oakland, Oakland, California
Jennifer M. Austin, MD; Pratima Gupta, MD, MPH

Introduction: The proportion of induced abortions that are medical (MAB) versus surgical (TAB) is significantly lower in the United States than in many European countries. To date, there have been no large studies in the United States comparing postprocedure complications in MABs versus TABs. The primary objective of this study was to determine if MABs resulted in more unscheduled visits than outpatient TABs for women seen within the Kaiser Permanente Northern California system. Secondary outcomes included reasons for additional visits and postprocedure contraception, including immediate versus interval intrauterine contraception (IUC).

Methods: We conducted a retrospective cohort study that included 350 women, aged 15-44, who underwent a MAB or TAB within 63 days gestation from September 1, 2009 to August 31, 2010 with 42 days follow-up. We used chi-square tests to compare demographic and clinical characteristics, number of unscheduled visits, reasons for additional visits, and type of postabortion contraception. Results: A statistically significant greater number of women who underwent a MAB had at least one additional unscheduled visit compared to women who underwent a TAB (22% versus 8%, \(P = .0002\)). Of the unscheduled visits in the MAB group, 38.5% were for a thickened endometrial stripe. In patients receiving an immediate versus interval IUC, there was no difference in unscheduled visits. Conclusion: Although medical abortions resulted in significantly more unscheduled visits than surgical abortions, many MAB visits were for a thickened endometrial stripe and unlikely clinically significant. This study highlights the need for improvement in clinician education on evidence-based MAB follow-up to reduce unnecessary visits.
Delayed Versus Immediate Postpartum Intrauterine Device Placement: A Randomized, Controlled Trial

Tiffany D. Justice, MD
University of Louisville, Louisville, Kentucky
Mary E. Stauble, MD; Vernon Cook, MD

Introduction: The postpartum period is the ideal time to initiate contraception. The intrauterine device appeals to many women; however, the need to return for placement is a significant barrier. We compared the safety and retention rate between immediate versus interval placement of levonorgestrel-containing IUS after vaginal delivery. Methods: Subjects were randomized while in labor to either immediate placement under ultrasound guidance or standard placement at 6 weeks postpartum. For the immediate group, an ultrasound was performed at 2 days and 6 weeks postpartum to ensure proper placement. Interval placement occurred at 6 weeks postpartum with a follow-up string check. Results: Thus far, 47 patients have been randomized. Of the patients randomized to immediate placement, 52% experienced expulsion or requested removal; of these women, 78% had another IUS placed or initiated another form of contraception. Over 88% of women randomized to immediate placement continued some form of contraception at 6 months postpartum. Of those randomized to interval placement, 35% failed to return for placement and are without birth control, 10% experienced expulsion or requested removal for a total of 55% of patients with continued contraception at 6 months. No complications other than expulsion were noted in either group. Conclusions: Immediate placement of an IUS at delivery is safe and effective and should be considered in those with a high rate of noncompliance. Though there is a higher expulsion rate when placed immediately, women are more likely to return so that the overall percentage of indigent women who are currently implementing any method of contraception is much higher.

Disclosure: Tiffany D. Justice, MD; Mary E. Stauble, MD; Vernon Cook, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.
Limited data suggest that homeless women are at high risk of unintended pregnancy. To describe homeless women’s experiences with pregnancy intention, sexuality, and contraceptive use, as well as to identify barriers to reproductive healthcare, this mixed-methods study was undertaken. Methods: Participants were reproductive-aged, English-speaking or Spanish-speaking homeless women in families recruited from a shelter placement agency and an agency providing services to homeless families. Semistructured in-person interviews were conducted, and surveys were administered using Audio Computer-Assisted Interview technology. Results: Twenty-one interviews and 100 surveys were conducted. The dominant theme in the interviews was a strong desire to avoid pregnancy while homeless. However, women reported multiple barriers to preventing pregnancy: (1) inconsistent contraception use, (2) change in the power dynamics of sexual relationships, (3) deprioritizing health, and (4) impediments at the policy, shelter, and health care provider level. The survey findings confirmed that the majority of women wanted to avoid pregnancy while homeless although few used reliable contraception. Logistical issues, fear of health problems and side effects, and partner dislike of contraceptives, not cost and access, were the main barriers to effective contraception use. Conclusion: Women strongly desire avoiding pregnancy while homeless. However, multiple obstacles make it difficult for homeless women to control their reproductive health. Simple interventions in policy, shelters, and clinical practice may enable homeless women in families to more easily use effective contraception.

Disclosure: Sara L. Kennedy, MD, MPH; Christine Dehlendorf, MD, MAS; and Mandeep K. Grewal, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

[7] Postplacental Versus Delayed Postpartum Intrauterine Device Insertion: A Decision Analysis

Holly M. Langmuir, MD, MPH
Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania
Courtney A. Schreiber, MD, MPH; David A. Asch, MD, MBA

Introduction: The intrauterine device (IUD) is a highly effective method of contraception, which is underutilized postpartum due to financial and logistical barriers. Postplacental insertion is a safe option, but it is not widely performed due to concerns about expulsion. We performed a decision analysis to model the rate of pregnancy at 1 year postpartum after postplacental IUD placement compared with routine insertion at 6-8 weeks postpartum. Methods: An evidence-based decision analysis was created to model rates of pregnancy at 1 year postpartum for 1,000 women who have IUDs placed either within 30 minutes of delivery or 6-8 weeks postpartum. We considered low, average, and high rates of unintended pregnancy at 1 year postpartum. Sensitivity analyses were performed for all model variables. Results: Postplacental insertion prevented 33 pregnancies when compared to standard postpartum insertion when the average unintended pregnancy rate at 1
year postpartum was estimated at 27%. When the unintended pregnancy rate was varied, postplacental insertion prevented a minimum of 11 additional pregnancies compared to postpartum insertion. Sensitivity analyses demonstrated the superiority of postplacental insertion regardless of rate of expulsion or rate of follow up postpartum. Conclusions: Women who receive immediate postplacental insertion of an IUD are less likely to experience an unintended pregnancy at 1 year postpartum compared to women who are scheduled for postpartum insertion. The benefit of postplacental insertion prevails when rates of postpartum follow-up and IUD expulsion are maximized.

Disclosure: Holly M. Langmuir, MD, MPH and David A. Asch, MD, MBA - These authors have no conflicts of interest to disclose relative to the contents of this presentation. Courtney A. Schreiber, MD, MPH - This author has relevant financial relationships with the following commercial interests: Consultant: Berlex Pharmaceuticals.

A Survey of Health Literacy in an Indigent Population and its Effects on Sexual Health Behaviors

Elizabeth Q. McLemore, MD
Virginia Commonwealth University Health Systems, Richmond, Virginia
Amanda K. Haines, BS; John G. Pierce, MD

Introduction: In 2009, the CDC reported the annual incidence of U.S. sexually transmitted diseases (STDs) was 19 million. The U.S. teenage pregnancy rate remains high among industrialized nations. These burdens create significant health care-related consequences. Health literacy is the ability to perform basic tasks to function in the health care setting. Our objective is to examine the relationship between sexual health and health literacy. Methods: 300 adult women completed a sexual health survey followed by the Rapid Estimate of Adult Literacy in Medicine (REALM) to assess their health literacy. The associations between literacy and sexual health were assessed using relative risk calculation. Results: Subjects with low literacy were 1.8 times more likely to be African American (relative risk [RR] 1.85, confidence interval [CI] 1.14 to 3.02). More education meant higher literacy (RR 5.12, CI 2.78 to 9.42). The mean REALM score was at the seventh grade level despite 41% of enrollees finishing high school. Regarding sexual health, 68% are using no contraception and 40% have a history of an STD and multiple partners. Lower literacy subjects were 2.73 times more likely to not know what a STD is (RR 2.73, CI 1.93 to 2.86) and only half knew that condoms prevent STDs. Finally, patients receive STD and contraception information from their physicians. Conclusions: Acknowledging the health literacy of a population is important for success in counseling efforts. It seems reasonable to deduce that physician counseling about sexual health at appropriate health literacy levels has the potential to affect outcomes such as unintended pregnancies and STD transmission.

Disclosure: Elizabeth Q. McLemore, MD; Amanda K. Haines, BS and John G. Pierce, MD - These authors have no conflicts of interest to disclose relative to the contents of this
Intrauterine Device Discontinuation in an Urban Clinic Setting

Christopher M. Morosky, MD
University of Connecticut School of Medicine, New Britain, Connecticut
Dina M. Barnaby, DO; Renee Silvis, BS

Background: Intrauterine devices (IUD) are a reliable form of contraception. Early discontinuation is associated with decreased cost-effectiveness and increased unplanned pregnancy rates.

Methods: We performed a retrospective chart review of all patients who underwent Copper T 380A (CuT) or levonorgestrel-eluting (LNG) IUD insertion through our clinic from January 1, 2005 to July 31, 2010. We abstracted data related to IUD insertion, removal and pregnancy information after removal.

Results: A total of 249 IUD (68 CuT, 175 LNG, 6 unknown) were inserted. A total of 94 (25 CuT, 66 LNG, 3 unknown, \( P = \text{NS} \)) were removed or dislodged. Seven IUD were expelled, and one migrated to the intraperitoneal cavity. The average time to removal was 403 days (14-1,391 days). The most common reasons for removal were pain (36% CuT versus 40% LNG, \( P = \text{NS} \)), fertility (28% CuT versus 17% LNG, \( P = \text{NS} \)) and bleeding (24% CuT versus 11% LNG, \( P = .041 \)). Two women became pregnant with an IUD in place, resulting in one ectopic pregnancy and one first trimester miscarriage. Of the 17 patients who had their IUD removed for fertility, 13 became pregnant with an average time to conception of 96 days (21-170 days). Of the remaining 77 patients who had their IUD removed or expelled, 21 became pregnant with an average time to conception of 353 days (45-928 days), \( P < .005 \). Conclusion: Providers should educate patients regarding common IUD discontinuation reasons and intervals, as well as the high rates of unplanned pregnancy when changing to a less reliable form of contraception.

Disclosure: Christopher M. Morosky, MD; Dina M. Barnaby, DO and Renee Silvis, BS - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Contraceptive Knowledge Among Women Seeking Termination of Pregnancy

Lauren K. Rabin, MD
Mid-Atlantic Permanente Medical Group, Baltimore, Maryland
Katherine J. Hladky, MD; Mishka Terplan, MD, MPH

Introduction: The purpose of this study is to assess contraceptive knowledge among women presenting for elective termination of pregnancy at a Baltimore clinic.

Methods: From November 2010 to May 2011, we invited adults seeking pregnancy termination to participate in a survey of contraceptive knowledge focused on oral contraceptive pills (OCPs), depot medroxyprogesterone acetate (DMPA), the implant, and intrauterine devices (IUDs). The correct use and side effects of these methods were evaluated. Demographic and reproductive data were collected. We assessed
overall knowledge and evaluated if past use of a method or interest in a method influenced knowledge. Results: Of the 150 individuals approached, 52 surveys were returned (response rate 35%). All respondents identified as African American. Respondents were young; 65% were aged 18-26 years. The median number of prior abortions was 1, median gravidity was 4, and median parity was 2. The overall correct response rate for contraceptive knowledge was 40%. Respondents had the most accurate responses to questions about OCPs (53% correct), and the least knowledge regarding the subdermal implant (30% correct). Contraceptive knowledge did not differ by any measured demographic characteristics. There was a significantly higher correct response rate regarding contraception respondents had used previously ($P$: OCPs = .004, IUDs = .01, DMPA = .02, implant = .04). The chosen method for future use was not related to knowledge with the exception of the IUD. Conclusion: Among this population of women seeking pregnancy termination, overall contraceptive knowledge was poor. Personal experience with a specific birth control method was associated with improved knowledge.

Disclosure: Lauren K. Rabin, MD; Katherine J. Hladky, MD and Mishka Terplan, MD, MPH - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

[11] Intracervical Lidocaine Gel for Pain Control with Intrauterine Device Insertion: A Randomized Controlled Trial
Elizabeth L. Sullivan, MD
University of Wisconsin, Madison, Wisconsin
Caryn R. Dutton, MD; Mary S. Landry, MD

Introduction: Concern about pain associated with intrauterine device (IUD) insertion may limit the uptake of this highly effective contraceptive method, particularly in younger, nulliparous women. This double-blind, randomized controlled trial evaluates the efficacy of applying intracervical lidocaine gel to reduce pain scores associated with IUD insertion. Methods: Nulliparous women requesting levonorgestrel IUD insertion were randomized to application of 2% lidocaine gel or placebo gel in the cervical canal two minutes prior to the IUD placement. Subjects reported their maximum pain during the procedure on a 10-point visual analog scale (VAS), as well as their pain 10 minutes after the procedure. Providers also assessed patient’s tolerance of the IUD insertion procedure. Results: 40 women were enrolled in the study, 20 in each treatment group. All subjects were under the age of 35, with similar demographics between groups. The maximum pain reported by subjects during the insertion procedure did not differ between the placebo and lidocaine group (VAS score of 5.53 and 5.88 respectively, $P$ = .54). Pain scores 10 minutes after the procedure were also similar between groups (2.09 versus 1.79, $P$ = .61). A nonsignificant trend towards increased provider-perceived patient tolerance of the procedure in the lidocaine group was noted. Conclusion: This study demonstrates no difference in pain scores during levonorgestrel IUD insertion for nulliparas administered intracervical lidocaine gel when compared with placebo.
Reduction of Menstrual Pain in Women Treated With the Oral Contraceptives NOMAC/E2 or DRSP/EE

Carolyn L. Westhoff, MD, MSc
Columbia University, New York, New York

Andrew M. Kaunitz, MD; Luis Bahamondes, MD

Introduction: A 1-year multicenter trial comparing the efficacy and safety of the new combined oral contraceptive containing nomegestrol acetate 2.5 mg/17beta-estradiol 1.5 mg (NOMAC/E2; 24/4 regimen) with drospirenone 3 mg/ethinylestradiol 0.03 mg (DRSP/EE; 21/7) found that NOMAC/E2 provides robust contraceptive efficacy and is associated with shorter and lighter periods. As part of scheduled assessments, women completed the 47-item Moos Menstrual Distress Questionnaire (MDQ).

Methods: Women 18-50 years old without contraindications to contraceptive steroids were randomized to receive NOMAC/E2 (N = 1,710) or DRSP/EE (N = 571). They completed the MDQ using an e-diary at Day 1 (baseline) and at the end of Cycles 1, 3, 6, and 13 or at premature discontinuation. Women rated MDQ items on a 5-point scale (0 = no symptoms to 4 = severe) for the premenstrual, menstrual, and intermenstrual phase of the preceding cycle. Results: Women using NOMAC/E2 had greater reductions in the overall pain domain scores compared with women using DRSP/EE, particularly during the menstrual phase. For menstrual cramping pain (Item 10; Figure), reductions in NOMAC/E2 users with moderate to severe cramping (N = 632 at baseline) were consistently more than 1 point on the 5-point scale, and greater than the reductions reported by DRSP/EE users (N = 198). The only other difference between treatment groups was in the MDQ “arousal” domain. After a (normalized) baseline score of 60, a slight decrease in arousal was noted with both products (NOMAC/E2 users had a greater reduction [average of 2-3 points] at last measurement). Conclusions: NOMAC/E2 is associated with a greater reduction in menstrual cramping compared with DRSP/EE.
Reduction in menstrual cramping scores in women with moderate to severe cramping at baseline (MDQ Item 10)

* indicates statistically significant difference (P<0.05) between treatment groups

<table>
<thead>
<tr>
<th>Cycle</th>
<th>NOMAC/E2</th>
<th>DRSP/EE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>![Chart Data]</td>
<td>![Chart Data]</td>
</tr>
<tr>
<td>3</td>
<td>![Chart Data]</td>
<td>![Chart Data]</td>
</tr>
<tr>
<td>6</td>
<td>![Chart Data]</td>
<td>![Chart Data]</td>
</tr>
<tr>
<td>13</td>
<td>![Chart Data]</td>
<td>![Chart Data]</td>
</tr>
</tbody>
</table>

Disclosure: Carolyn L. Westhoff, MD - This author has relevant financial relationships with the following commercial interests: Advisory Committee member: Duramed/Teva, Agile; Data Safety and Monitoring Committee: Merck (formerly Schering Plough); Data Safety and Monitoring Committee: Bayer; Research contract and Advisory Committee: Medicines360; Research support (investigator initiated): Pfizer and Merck. Andrew M. Kaunitz, MD - This author has relevant financial relationships with the following commercial interests: Clinical Trials (Funding to University of Florida Research Foundation): Agile, Teva, Bayer, Medical Diagnostic Laboratories, Noven, Endoceutics; Consultant: Agile, Teva, Bayer, Merck, Noven; Stockholder: Becton Dickinson Royalties: UpToDate. Luis Bahamondes, MD - This author has no conflicts of interest to disclose relative to the contents of this presentation.

Education

[13] Can Surgical Preceptorship Change Minimally Invasive Hysterectomy Rates?

_Edgar W. Boggs, MB_

_St. Michael's Hospital, Toronto, Ontario_

_Guylaine Lefebvre, MD; Sari L. Kives, MD_

Objective: A 3-year follow-up of a surgical preceptorship program aimed at promoting minimally invasive hysterectomy (MIH). Methods: A retrospective chart review of all hysterectomies performed at a single institution between July 2010 through December 2010. This was compared to a similar data collection performed in 2007 immediately following a 6-month surgical preceptorship program. The program consisted of assessing all patients for a MIH and providing preceptors with advanced skills.
Minimally Invasive Surgery (MIS) training to lead in the operating room. Results: 170 hysterectomies were performed in the 6-month period. Staff with MIS fellowship training has increased from 31.2% to 46.2%, with proportion of hysterectomies performed increasing from 60.1% to 66%. Overall, from prepreceptorship, preceptorship, 6-month review and now 3-year review, the MIH rate has increased from 35.6%, 55.6%, 58.3% and now 65.3%, respectively. Specifically for non-MIS staff the MIH rate has increased from 13.8% (9/65) in 2007 to 37.9% (22/58) in 2010. For the MIS staff the MIH rate has declined from 87.8% to 79.5% in the same period. Mean length of hospital stay overall has decreased from 3.3 days to 2.3 days. Conclusion: Preceptorship has resulted in a change in practice by non-MIS trained staff. Interestingly the MIS staff performance declined, perhaps reflecting an intention to treat bias during the initial monitoring period. Further research is required to ascertain if the benefits of preceptorship shown in this study can be replicated at a regional or national level.

Disclosure: Edgar W. Boggs, MB; Guylaine Lefebvre, MD and Sari K. Kives, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation

Palliative Medicine Educational Initiative for Trainees in Obstetrics, Gynecology and Women’s Health
Nicole S. Nevadunsky, MD
Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, New York
Enid Y. Rivera, MD; Serife Eti, MD

Background: Women with gynecologic malignancies are confronted with pain, symptoms and end-of-life decisions. Trainees in obstetrics and gynecology may improve care by implementing principles of Palliative Medicine. Methods: Fifty six trainees participated in interdisciplinary lectures themed an Introduction to Palliative Medicine (IPM) and Pain Management (PM). Participants completed a pre-test and posttest. The PM lecture included a case-based component. Statistical analysis was performed using Students t-test and SPSS software. Results: Mean pretest scores for the IPM and PM lectures were 56% and 50% respectively. Significant improvement was seen between pre and post-test scores of the PM lecture, mean post-test score of 86%, P <.05. No improvement was seen between pretest and posttest for the IPM lecture. Questions related to prognosis, hospice benefit and medical futility were answered correctly in 5%, 14% and 42%, in the IPM pretest. In the PM pretest questions related to doses of opiates, pharmacokinetics and opiate side effects were answered correctly in 25%, 17% and 17% of responses. Opiate lock-out, adjuvant analgesics and bowel regimens were the most commonly correctly answered questions (82%, 66%, and 82% respectively) in the PM pretest. Themes related to patient confidentiality and communication with family were most commonly correctly answered in the IPM pretest (95% and 81%). Conclusion: Trainees scored higher on themes related to their daily practices and lower on questions related to complex components of Palliative Medicine. Learners scored higher on posttests
related to pain management after case-based learning. Further study is needed to evaluate the most effective educational tools.

Disclosure: Nicole S. Nevadunsky, MD; Enid Y. Rivera, MD and Serife Eti, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

A Postpartum Hemorrhage Quality Care Initiative to Reduce Maternal Mortality in Los Angeles County

Diana E. Ramos, MD, MPH
Los Angeles County Public Health, Los Angeles, California
Cynthia Harding, MPH; Giannina Donatoni, PhD

Introduction: In 2003 Los Angeles County (LAC) the maternal mortality rate was 14.5 deaths per 100,000 live births and African American 30 deaths per 100,000 live births. Many deaths are avoidable through changes in women’s health, actions, clinical care and the health care system. A 2001 to 2003 review of the maternal deaths in LAC revealed that 75% of deaths were preventable, with obstetric hemorrhage being the most preventable cause of death. Methods: LAC Public Health developed the LAC Maternal Care Quality Improvement Project. A collaborative was formed of eleven hospitals responsible for over 32,000 births annually The collaborative focused on preventing obstetric hemorrhage by developing and implementing an electronic communication platform to share best practices, webinars, training modules, drills for hospitals and to track project outcomes. Results: 100% of participating hospitals developed policies for addressing massive obstetric hemorrhage. 91.0% (10 of 11) participating hospitals documented progress implementing the protocol of seven strategies to recognize, respond to, and prevent obstetric hemorrhage. Collaborative hospitals reduced the use of packed red blood cells 4.2 units per 1,000 births (12.4%) and all blood products by 8.3 units per 1,000 births (18.0%). Eight (73.0%) hospitals achieved at least two of the five processes to prevent obstetric hemorrhage and educate and involve staff in hemorrhage policies and procedures. Conclusion: Concerted efforts from providers, hospitals and patients are necessary to address contributors to maternal mortality and morbidity. Quality improvement in maternity care saves lives and reduces complications.

Disclosure: Diana E. Ramos, MD, MPH; Cynthia Harding, MPH and Giannina Donatoni, PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Accuracy of Measurements When Using Open Versus Blinded Simulated Cervical Dilation Models

Mari C. B. Trinidad, MD
St. Luke’s Hospital and Health Network, Bethlehem, Pennsylvania
James N. Anasti, MD

Introduction: Accurate assessment of cervical dilation is essential in the management of labor. This study aims to determine the accuracy of measurements when using
open versus blinded simulated cervical dilation models. Methods: Hard cervical dilation models calibrated from closed to 10 cm were used. These were initially examined open and then placed in chambers that allowed for the examinations to be done blinded. Twenty ob-gyn residents and 10 medical students participated in the study. Results: A total of 308 paired open and blinded cervical dilation measurements were obtained from 28 different examiners in a two-part study. The overall accuracy rate was 84% when using the open simulated cervical dilation models. Only 58% were correct when measurements were done blinded. There appears to be a statistically significant difference in the average percentage of correct responses between the open versus blinded groups as a whole and between PGY subgroups ($P < .004$). For medical students, although there was a higher percentage of correct measurements in the open versus the blinded models, this did not reach statistical significance. Conclusion: The actual assessment of the cervix during labor relies mainly on proprioception, with the absence of visual cues that may aid in measurement. These results suggest the need for the right educational tools and models that will allow residents and students to develop the necessary proprioception skills to assess cervical dilation accurately and consistently. Further studies are needed to objectively determine the impact of the use of closed versus open models on this particular skill acquisition.

Disclosure: Mari C.B. Trinidad, MD and James N. Anasti, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Characteristics of a Hospital System Based Social Media Platform

Vivian E. Von Gruenigen, MD  
Summa Health System, Akron, Ohio  
Jae E. Chung, PhD; Michele L. McCarron, PhD

Introduction: Today, there are 1,188 hospitals that use social media tools. Yet, despite the popularity of social media, few people are using hospital platforms as an outlet for health information. The proposed project sought to map the user characteristics of a Hospital Systems social media structure. Methods: An internet based survey was administered on the hospital’s Facebook®, Twitter, and blog. Results: Of the survey respondents ($n = 156$: $n = 53$ Facebook®, $n = 8$ Twitter, and $n = 110$ women’s health blog), 95.5% are female and 4.5% are male; mostly age 50-59 (33.8%) and 40-49 (26 %); and 93.6% Caucasian with no Hispanic or Latino background whereas the hospital database reports 68%. Of the survey respondents, 60 % reported having a bachelor degree or higher whereas only 12% reported only having a high school degree/equivalent or lower. However, compared to hospital databases, 93% of patients have a high school degree/equivalent or lower and only 3% have a bachelors or higher in our women services population. Social media was used to seek personal health information 71.5% ($n = 103$), to seek family health information 29% ($n = 42$), and for hospital programming 27 % ($n = 39$). Respondent groups less than 49 years of age were statistically ($P = .02$) more likely to seek
personal health information using social media compared with age groups 50 years and older. Conclusion: Social media can play an important role in disseminating health information, especially for young female respondents; however, the survey provides strong evidence that a better campaign is needed to improve usage among our disparity and minority populations.

Disclosure: Vivian E. Von Gruenigen, MD - This author has relevant financial relationships with the following commercial interests: Research Grant Support - GSK, Intuitive Surgical. Joe E. Chung, PhD and Michele L. McCarroll, PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Ethics/Professional Liability/Risk Management

Effectiveness of a Quality Improvement and Patient Safety Initiative for Appropriate Oxytocin Usage
Niraj R. Chavan, MD, MPH
Flushing Hospital Medical Center, Flushing, New York
Allan J. Jacobs, MD, JD; Shelly Soni, MD

Introduction: This study aimed at evaluating the impact of a Quality Improvement and Patient Safety (QIPS) initiative addressing the appropriate use and adequate documentation of oxytocin administration. Methods: We implemented a QIPS program from July 2010 through December 2010 among residents, physicians and L&D nurses, through in-service training sessions, lectures, grand rounds and written communication for increasing the awareness about risks of oxytocin administration. We reviewed the labor records of 264 cases prior to and 362 cases after implementation. The quality improvement measures studied included the rate of completion of an “oxytocin note”, detailing (1) indication for oxytocin use (2) consent of the attending physician in the L&D (3) previous uterine scar and (4) estimated fetal weight. We retrospectively evaluated the appropriateness of oxytocin use, using standard criteria. Finally, we compared the perinatal outcomes in the two groups. Results: Demographic characteristics were similar in both groups. The postintervention group had higher rates of documentation of oxytocin note (89.77% versus 34.46%, \( P < .001 \)), completeness of documentation (82.32% versus 26.51%, \( P < .001 \)), documentation of the obstetric indication for oxytocin administration (80.11% versus 25.77%, \( P < .001 \)) and appropriate oxytocin use (76.79% versus 62.12%, \( P < .001 \)). The cesarean delivery rate and the NICU admission rate were found to be lower after implementation, though this did not reach statistical significance. Conclusion: Complete documentation, reflecting clinically appropriate oxytocin usage is a critical patient safety check. The administration of oxytocin can be closely monitored as a marker for quality improvement, for positively impacting perinatal outcomes.
Disclosure: Niraj R. Chavan, MD, MPH; Allan J. Jacobs, MD, JD and Shelly Soni, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

A Three-Year Journey to Zero Retained Sponges

Verna C. Gibbs, MD
NoThing Left Behind and Catholic Healthcare West, San Francisco, California
Brenda Chagolla, RN; John P. Keats, MD

Introduction: Retained surgical items are an obstetrical and gynecological patient safety problem. Surgical sponges and miscellaneous small items are inadvertently left in women after births and elective gynecological procedures. Provider engagement to rectify the problem has been difficult to achieve. Existing variable counting practices and reliance on a manual sweep are inadequate processes to prevent retention. In 2009 CHW, the nation’s fifth largest healthcare system with 32 maternity hospitals in California, Arizona and Nevada began system-wide implementation of a multi-stakeholder practice to eliminate the persistent problem of retained sponges. Methods: Top leadership resource commitments facilitated the

Table: Quality Improvement Measures and Perinatal Outcomes

<table>
<thead>
<tr>
<th>Quality Improvement Measures</th>
<th>Pre Intervention (n = 264)</th>
<th>Post Intervention (n = 362)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation done (%)</td>
<td>91 (34.46)</td>
<td>325 (89.77)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Documentation complete (%)</td>
<td>70 (26.51)</td>
<td>298 (82.32)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Clinical indication present (%)</td>
<td>245 (92.80)</td>
<td>341 (94.19)</td>
<td>0.481</td>
</tr>
<tr>
<td>Indication appropriate (%)</td>
<td>164 (62.12)</td>
<td>278 (76.79)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Indication documented (%)</td>
<td>68 (25.75)</td>
<td>290 (80.11)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Adverse effects noted (%)</td>
<td>170 (64.39)</td>
<td>247 (68.23)</td>
<td>0.602</td>
</tr>
<tr>
<td>Tachysystole</td>
<td>42 (15.91)</td>
<td>51 (14.01)</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>52 (19.69)</td>
<td>64 (17.67)</td>
<td></td>
</tr>
<tr>
<td>Perinatal Outcomes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cesarean delivery (%)</td>
<td>102 (38.63)</td>
<td>121 (33.43)</td>
<td>0.179</td>
</tr>
<tr>
<td>Operative vaginal delivery (%)</td>
<td>27 (10.22)</td>
<td>34 (9.39)</td>
<td>0.728</td>
</tr>
<tr>
<td>Neatnataal weight (grams)</td>
<td>3369.14 ± 314.94</td>
<td>3342.94 ± 289.16</td>
<td>0.281</td>
</tr>
<tr>
<td>Apgar at 1 minute</td>
<td>7.54 ± 1.23</td>
<td>7.69 ± 1.14</td>
<td>0.116</td>
</tr>
<tr>
<td>Apgar at 5 minutes</td>
<td>8.69 ± 1.11</td>
<td>8.92 ± 0.97</td>
<td>0.005*</td>
</tr>
<tr>
<td>NICU admission rate (%)</td>
<td>43 (16.28)</td>
<td>44 (12.15)</td>
<td>0.140</td>
</tr>
<tr>
<td>Length of NICU stay (days)</td>
<td>15.45 ± 8.34</td>
<td>14.56 ± 9.32</td>
<td>0.218</td>
</tr>
<tr>
<td>Incidence of birth trauma / Shoulder dystocia (%)</td>
<td>6 (2.27)</td>
<td>7 (1.93)</td>
<td>0.769</td>
</tr>
</tbody>
</table>

# - NRFHR = Non Reassuring Fetal Heart Rate
* - Represents statistical significance at p < 0.05
introduction of the standardized sponge accounting practice in 278 operating rooms and labor and delivery areas. Regional training sessions using a train the trainer model were conducted for over 600 obstetricians, certified nurse midwives, nurses, obstetric technicians, radiologists and radiology technicians. Visual learning tools remained posted in each procedure area and instructional materials were online. Weekly case audits, external reviews and monthly conference calls were conducted. Behavioral challenges from healthcare providers were addressed in peer structured discussions. A vigorous reporting system with rapid event analysis was utilized.

Results: Zero cases of retained vaginal sponges were achieved in all 32 hospitals for 18 months and Zero cases of retained abdominal/pelvic sponges has been sustained for 1 year through hundreds of thousands of births and elective and emergency gynecological procedures. Conclusions: Multistakeholder engagement and use of a standardized verifiable system for sponge management in obstetrical and gynecological cases prevents patient harm. Retained sponges can be a true never event.

Disclosure: Verna C. Gibbs, MD; Brenda Chagolla, RN and John P. Keats, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Drive Times to Hospitals Offering Maternity Care in the United States

Jeffrey Klagholz, BS  
American College of Obstetricians and Gynecologists, Washington, DC

Michael E. Richards, MD; William F. Rayburn, MD, MBA

INTRODUCTION: To evaluate access to inpatient obstetric care, we determined the proportions of reproductive-aged women who resided within 30 and 60 minute drives to the nearest hospital offering maternity services. METHODS: Perinatal centers, identified from the 2010 American Hospital Association survey, were designated as being level I (uncomplicated obstetric and nursery care), II (limited complicated care), or III (full complement of care). The study population consisted of all reproductive-age (18-49 years) women included in the 2010 U.S. Census Bureau estimates. We used geographical information system (GIS) mapping software (ESRI, Redland, CA) to map 30 minute and 60 minute drive times from the census block group centroid to the nearest center. Results: A total of 2,606 hospitals in the United States offered some level of maternity care for the 73.6 million reproductive-aged women. Access to perinatal centers within a 30-minute drive varied by the level of care: 86.9% of the population to any center, 77.7% to level II or III centers, and 60.0% to level III facilities. Access to the centers within a 60-minute drive also varied: 97.1% of the population to any center, 92.8% to level II or III centers, and 79.7% for level III facilities. The mostly rural western half of the United States (except for the Pacific Coast) and Alaska had the least geographic distribution of hospitals offering maternity services. Conclusion: Driving times to hospitals offering maternity care vary considerably. Use of GIS software can be valuable for regional workforce planning.
and policy-making in relation to accessing obstetric care.

Disclosure: Jeffrey Klagholz, BS; Michael E. Richards, MD and William F. Rayburn, MD, MBA
These authors have no conflicts of interest to disclose relative to the contents of this presentation.

County Distribution of Obstetricians-Gynecologists in the United States
Jeffrey Klagholz, BS
American College of Obstetricians and Gynecologists, Washington, DC
Lana Dowell, BA, William F. Rayburn, MD, MBA

Introduction: To develop effective policies addressing the health care delivery of women everywhere, we assessed the distribution of obstetrician-gynecologists (ob-gyns) at county and state levels throughout the United States. Methods: Data were gathered from the 2010 U.S. County Census File for adult women and reproductive-age women (15-44 years old) and from the membership roster of the American College of Obstetricians and Gynecologists. Density of post-residency, actively practicing physicians trained in general ob-gyn were mapped at county levels. Maps were generated using Microsoft MapPoint. Results: In 2010, there were 33,316 general ob-gyns in the United States, representing 5.0% of the total 661,400 physicians and yielding a national ratio of 2.62 ob-gyns per 10,000 women. Of all ob-gyns, 32,649 (98%) listed patient care as their primary activity. The mean number of ob-gyns per 10,000 women declined significantly from metropolitan counties, to micropolitan counties, and to rural counties ($P < .001$). Approximately half (1,550, 49%) of the 3,143 U.S. counties lacked a single ob-gyn, and nearly 9.5 million Americans lived in those predominantly rural counties. These counties were in all states but especially in the Midwest and South. Most counties without an ob-gyn were recognized as being underserved by the Bureau of Primary Care's Health Professional Shortage Area (HPSA) designation. Conclusions: An uneven distribution of ob-gyns exists throughout the United States and may worsen as resident graduates cluster in metropolitan areas. Meeting the needs of underserved areas requires governing bodies to develop, test, and implement provider compensation modes.

Disclosure: Jeffrey Klagholz, BS; Lana Dowell, BA and William F. Rayburn, MD, MBA - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Safety Culture in the Gynecology Robotics Operating Room
Michele L. McCarroll, PhD
Summa Health System, Akron, Ohio
Melissa D. Zullo, PhD; Vivian E. Von Gruenigen, MD

Introduction: Gynecologic robotic surgery is a high volume environment requiring team cohesion to perform safe surgery. Implementation of a Robotics Operating
Room Computerized Checklist (RORCC) may improve safety culture. Methods: This was a pilot study of gynecology surgical staff (n = 32) in one hospital. The Safety Attitudes Questionnaire (SAQ) measured operating room (OR) safety culture pre/post-RORCC implementation. Quality of communication and collaboration (QCC) between staff and SAQ domains were examined: teamwork; safety; job satisfaction; stress recognition; perceptions of management; and working conditions. Domains were described using percent agreement and Cronbach’s alpha. RESULTS: Mean staff age was 46.7 (±9.5), majority were female (78%), and full-time (97%). Twenty respondents (83% of OR nurses; 80% of surgeons; 66% of surgical technicians; 33% of CRNAs) completed the post-SAQ (n = 6 excluded with nonmatching ID). Pre-RORCC implementation, highest QCC was reported by surgeons and surgical technicians (100%) with surgical technicians. CRNAs reported only adequate levels of QCC with other positions. Majority of staff reported positive responses for job satisfaction (66%; α = 0.86); however, less than half reported positive responses for teamwork (48%; α = 0.81); safety (47%; α = 0.75); working conditions (37%; α = 0.55); stress recognition (26%; α = 0.71); and perceptions of management (32%; α = 0.52). No differences were observed post-RORCC implementation. Conclusion: QCC in the gynecology robotics OR is high between most positions; however, safety attitude responses are low overall. No differences post-RORCC implementation and low response rates may highlight a lack of staff support. Future research will examine methods to improve safety attitudes and describe the effect safety culture has on patient outcomes.

Disclosure: Michele L. McCarroll, PhD and Melissa D. Zullo, PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation. Vivian E. Von Gruenigen, MD - This author has relevant financial relationships with the following commercial interests: Research Grant Support: GSK, Intuitive Surgical.

Gynecology

Influence of Leiomyoma Type, Number and Size Upon Menstrual Blood Loss in Patients with Menorrhagia

Erika H. Banks, MD
Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, New York
Bruce B. Lee, MD

Introduction: Quantitative data correlating type, number and size of leiomyomata and menstrual blood loss is scarce. Methods: In this prospective, multi-center, longitudinal, single-arm, paired-comparison, interventional study at 11 urban centers subjects had a baseline menstrual blood loss of 160-500 cc by alkaline hematin (AH) method and up to six myomas by preoperative transvaginal ultrasound. Laparoscopic ultrasound findings during radiofrequency ablation of symptomatic uterine leiomyomata were correlated with menstrual blood loss (MBL). Patients with noncyclic bleeding and type 0 submucosal myomas were excluded. Results: The overall mean AH (N = 134) was 272.5 cc (standard deviation [SD] = 80.3; range 160.0-
499.5). One hundred and twenty subjects had intramural (IM), 61 had intramural abutting the endometrium (IMAE), 66 had submucosal (SM), and 74 had subserosal (SS) myomas, with mean AH values of 274.1, 272.3, 272.5, and 280.2 cc, respectively. In subjects with AH values of 201-350 (62.7%) and 351-500 cc (16.4%) mean number of myomas was 0.63 and 1.23 for SMs, 0.63 and 0.86 for IMAEs, and 2.8 and 3.8 for IMs, respectively. The differences were not significant. The number of intramural fibroids was significantly greater than other myoma types in both AH intervals \((P <.05)\). Although not significant, a positive correlation between myoma count and AH was seen for all fibroid types except for IMAEs (correlation coefficient 0.098, -0.011, 0.097, and 0.112 for IMs, IMAEs, SMs, and SSs, respectively. Conclusion: Myoma location, number and size within each type did not correlate with higher MBL, suggesting factors beyond these parameters may determine menorrhagia.

Disclosure: Erika H. Banks, MD - This author has no conflicts of interest to disclose relative to the contents of this presentation. Bruce B. Lee, MD - This author has relevant financial relationships with the following commercial interests: Consultant: Halt Medical, Inc.

Access to Conservative Surgical Therapy in Adolescents with Benign Ovarian Masses

Sloane W. Berger-Chen, MD

Columbia University College of Physicians and Surgeons, New York, New York

Jason D. Wright; MD, Thomas J. Herzog, MD

Introduction: Little data is available describing the patterns of care for adolescents with benign ovarian masses. We performed a population-based analysis to determine factors associated with use of laparoscopy and ovarian-conserving cystectomy.

Methods: Women younger than 18 years with a benign ovarian mass who underwent surgery from 2000-2010 across the U.S. were analyzed. Patients were classified based on the surgical approach (open versus laparoscopy) and procedure (oophorectomy versus cystectomy). Use of laparoscopy and performance of cystectomy were characterized using multivariable logistic regression models accounting for patient, surgeon, and hospital characteristics. Results: A total of 2,126 patients including 1,425 (67.0%) that underwent laparotomy and 701 (33.0%) who had laparoscopy were identified. Laparoscopy increased from 32.1% in 2000 to 57.9% by 2010. In a multivariable model black women (odds ratio [OR] = 0.49; 95% confidence interval [CI], 0.37-0.65), and patients in the northeast (OR =0.65; 95% CI, 0.46-0.94) were less likely to undergo laparoscopy while treatment at a high volume hospital (OR = 1.35; 95% CI, 1.04-1.75) was associated with use of laparoscopy. Cystectomy was performed in 57.1% in 2000 and increased to 61.4% in 2010. The only significant predictors of cystectomy were age and the specialty of the treating physician; adolescents aged 13-16 years (OR = 1.34; 95% CI, 1.03-1.75) were more likely to undergo cystectomy than younger patients while women managed by surgeons (OR = 0.51; 95% CI, 0.38-0.68) were less likely to have a cystectomy than patients treated by gynecologists. Conclusion: The management of adolescents with benign ovarian masses nexus...
masses is highly variable. In addition to patient characteristics, both physician and hospital factors strongly influenced treatment.

**Disclosure:** Sloane W. Berger-Chen, MD; Jason D. Wright, MD and Thomas J. Herzog, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

**Quality Clinical Outcomes For Hysterectomy: Readmission Rates By Route**

*Megan A. Christman, DO*

*Summa Akron City Hospital, Akron, Ohio*

*Michele L. McCarroll, PhD; Vivian E. Von Gruenigen, MD*

Introduction: Advances in minimally invasive surgery have dramatically changed the approach to gynecological surgery cases; however, the literature has yet to show that advances in surgical technologies have improved patient quality outcomes. The overall objective of the study was to retrospectively analyze admission rates using either minimally invasive robotic surgery (RS), laparoscopic assisted vaginal hysterectomy (LAVH), versus open (OP) hysterectomy procedures. Methods: A retrospective cohort analysis was performed on patients undergoing RS, LAVH, and OP from May 2009 to May 2011. Data was abstracted for 30, 60, and 90 days from the day of surgery using electronic medical records. A one-way ANOVA with a Bonferroni posthoc analysis was performed using SPSS 19.0. Results: There were no significant differences between RS (n = 269), LAVH (n = 113), and OP (n = 134) for 30-day and 90-day readmissions; however, there was a significant difference between RS and OP at 60-day ($P = .02$) and a trend towards significance between RS and OP ($P = .07$) for 90-day readmission rates. Common categories for readmissions ranged from surgical site infections, fever, abscess, and abdominal pain. Conclusion: RS appears to have a reduced burden on hospital utilization rates with fewer complications for readmissions 60 days post-operative and potentially 90 days post-operatively. The cost evaluation of hospital readmission rates after hysterectomies may help improve patient safety and cost reduction for accountable care organizations.

**Disclosure:** Megan A. Christman, DO and Michele L. McCarroll, PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation. Vivian E. Von Gruenigen, MD - This author has relevant financial relationships with the following commercial interests: Research Grant Support: GSK, Intuitive Surgical.

**Follow-Up Findings on Patients with Cervical Dysplasia and Negative LEEP Conization**

*Dalia M. Corrales, MD*

*The Methodist Hospital Research Institute, Houston, Texas*

*Christopher D. Hobday, MD*

Objectives: To examine the factors that may contribute to a negative LEEP finding after detection of high grade disease either by pap smear or colposcopy-guided
cervical biopsy and determine recurrence rates of CIN during follow up. Method: The records of women evaluated at the Raymond Kaufman Dysplasia Clinic between August 2005 and December 2009 who underwent a LEEP for cervical dysplasia were reviewed. Results: 318 patients who underwent LEEP at the Raymond Kaufman Dysplasia Clinic between August 2005 and December 2009 were identified. A negative LEEP was observed in 19.8% (n = 63). The average duration of follow up was 2 years for total population. The recurrence rates for positive LEEP estimated was 10.58% and for negative LEEP was 7.93% (\( P = .69 \)). Chi-square tests were performed for time frame elapsed from high grade diagnosis and type of contraceptive used before the procedure with LEEP results. Time elapsed since high grade diagnosis until LEEP procedure showed statistical significant associated with negative LEEP results. \( X^2 = (3, n = 302) = 11.740, P = .008 \). Type of contraceptive used did not show significant association. Conclusion: The incidence of a negative LEEP was not uncommon. Recurrence of high-grade disease among positive and negative populations were comparable, confirming a negative LEEP is not a reassuring finding. Our results showed a significant association among time elapsed from high grade diagnosis and LEEP results such that those who underwent the procedure more than 5 months since high grade diagnosis were more likely to have a negative LEEP.

Disclosure: Dalia M. Corrales, MD - This author has no conflicts of interest to disclose relative to the contents of this presentation.

Bone Morphological Protein in Human Endometrium
Sherif A. El-Nashar, MBBCh, MS
Mayo Clinic, Rochester, Minnesota
Abimbola O. Famuyide, MD; John K. Schoolmeester, MD

Background: The bone morphological protein (BMP) ligands exert a wide range of physiological functions in the target cells. The objective of the study was to evaluate the expression of BMP in human endometrium for the first time and to evaluate expression in patients with abnormal uterine bleeding (AUB). Methods: Samples from a cohort of patients with AUB and a reference cohort without bleeding were included. Patients received their care at Mayo clinic between January 1, 1994 through December 31, 2005 and had an array of benign (secretory, proliferative, atrophic) histopathologic diagnoses. Immunohistochemical staining was performed for progesterone and estrogen receptors; BMP family and their receptors; downstream effectors including SMAD proteins; and indicators of proliferation including Ki-67 and cyclin D1. Review was completed by pathologist who was blinded to the clinical information. Results: Samples from a total of 541 patients were evaluated during this study. BMP - 2, 4, 6 and 7 ligands had documented expression in human endometrium along with their receptors. All ligands were expressed more in patients with AUB compared to patient without bleeding. Conclusion: BMP family of proteins may play a role in the regulation of human endometrial function. Further evaluation of a putative role for BMP family in menstrual bleeding is warranted.
Hysteroscopic Removal of Cervical Ectopic Pregnancy Following Failed Intramuscular/Intrasac

Jason D. Kofinas, MD

New York Presbyterian Hospital, New York, New York

Melissa Montes, MD; Stephanie E. Purisch, MD

Background: Cervical pregnancies (CP) historically were diagnosed and identified at later gestational ages than tubal ectopics. Because of the relatively large gestational sac and highly vascular nature of the cervical tissue, treatment was often associated with massive hemorrhage. Conservative management is a relatively new and optimal treatment modality. Case: 34 year old with infertility who achieved spontaneous pregnancy after laparoscopic surgery for endometriosis found to have cervical pregnancy at approximately 5 weeks gestational age. Intramuscular injection of methotrexate failed to resolve the pregnancy. The patient was successfully treated with intrasac methotrexate under ultrasound guidance and directly visualized removal of the cervical pregnancy via operative hysteroscopy. Conclusion: Conservative management of cervical pregnancy and avoidance of hemorrhage/hysterectomy should be the standard of care.

Disclosure: Jason D. Kofinas, MD; Melissa Montes, MD and Stephanie E. Purisch, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

A Study of Readmissions Within 30 days in Patients Having a Hysterectomy: Does Robotics Improve Outcomes?

Martin A. Martino, MD

Lehigh Valley Health Network, Allentown, Pennsylvania

Elizabeth A. Berger, DO; Jocelyn C. Shubella

Introduction: The objective is to evaluate the quality metric “hospital readmission rates within 30 days” in patients who had a hysterectomy performed for benign disease after the learning curve by high volume surgeons. Methods: All patients who underwent a hysterectomy for benign disease from June 2006 through June 2011 were extracted from our database and de-identified. Patients were grouped by 4 surgical routes: Robotic, vaginal, laparoscopic, open. Inclusion criteria for high volume surgeons were completion of 20 cases in any given year. The first 20 cases within each cohort were considered part of the learning curve and removed from analysis to measure “after the learning curve.” Demographic data reviewed included age, body mass index, and comorbidities. The primary outcome measure was unplanned hospital readmissions within 30 postoperative days. Groups were compared using chi-square and logistic regression. This study was IRB-approved at
LVHN. Results: A total of 1121 patients (180 robotic, 236 vaginal, 254 laparoscopic, 451 open) met the inclusion criteria. The readmission rate for patients having robotic hysterectomy was 1.7% (3/180) compared with 5.5% (13/236) of patients who had vaginal hysterectomy (P = .04, odds ratio [OR] = 3.4, 95% confidence interval [CI] 0.0038-0.0730). Readmission rates for cases performed via laparoscopy and open were similar to vaginal hysterectomy, respectively 4.3% (11/254), 7.1% (32/451) and 5.5% (P = .42, P = .55). Conclusion: After the learning curve, patients who had a vaginal, laparoscopic or open hysterectomy for benign disease had a 3-fold higher chance to be readmitted within 30 postoperative days compared to patients who had a robotic hysterectomy.

Disclosure: Martin A. Martino, MD; Elizabeth A. Berger, DO and Jocelyn C. Shubella - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

An Analysis of Quality Outcomes in Patients Having a Hysterectomy: Robotics Versus the Vaginal Approach

Martin A. Martino, MD
Lehigh Valley Health Network, Allentown, Pennsylvania
Elizabeth A. Berger, DO; Jocelyn C. Shubella

Objective: To analyze quality outcomes in patients who completed a robotic-assisted hysterectomy (R) and vaginal hysterectomy (V) by high-volume surgeons after the robotics learning curve. Methods All patients who underwent a robotic and vaginal hysterectomy for benign disease from June 2006 through June 2011 were extracted from our database and de-identified. Inclusion criteria for high volume surgeons were completion of 20 cases in any year. The first 20 cases within each cohort were considered “the learning curve” and removed from analysis. Demographic data reviewed included age, body mass index, and comorbidities. Primary outcome measures were length of stay (LOS), estimated blood loss (EBL), and operative time (OR time). Secondary outcome measures were complication rates. Student’s t-tests and Pearson’s chi-squared tests were used for data analysis. This study was IRB approved. Results: A total of 416 patients (236 V, 180 R) met the inclusion criteria. There were no significant differences between the two groups in the demographic data. The mean LOS for R was less than V (1,990 min, ± 795 min versus 2,490 min, ± 1,502 min) (P <.001). The mean EBL for R was less than V (103 cc versus 318 cc, P <.001). The mean OR time was also less for R than V (206 min ± 71 min versus 235 min ± 68 min) (P <.001). R experienced a lower patient complication rate compared to V (3.9% versus 4.2%), but it lacked statistical significance. Conclusion: After the learning curve, patients who have a robotic hysterectomy may have improved quality outcomes when surgery is performed by high-volume surgeons.

Disclosure: Martin A. Martino, MD; Elizabeth A. Berger, DO and Jocelyn C. Shubella - These authors have no conflicts of interest to disclose relative to the contents of this presentation.
Advanced Operative Laparoscopy in Ambulatory Setting

Camran Nezhat, MD  
Stanford University, Palo Alto, California  
Chandhana Paka, MD; M. Ali Parsa, MD

Objective: To evaluate the efficacy and safety of advanced operative laparoscopy in ambulatory setting. Materials and methods: Multicenter, retrospective, nonrandomized analysis. From August 2010 to September 2011, 233 women with chronic pelvic pain, uterine leiomyomata and/or endometriosis underwent the following procedures: laparoscopic treatment of endometriosis (n = 152), laparoscopic myomectomy (n = 37) and laparoscopic hysterectomy (n = 34). Main outcome measures were type of surgery, percentage of patients discharged home within a 23 hour period and number of complications. Majority of the endometriosis patients had stage IV disease and adjunctive procedures such as lysis of adhesions, ureterolysis, appendectomy and sacral colpopexy were performed. Results: All but three patients (98%) were discharged home within a 23-hour period. Six minor complications (2.7%) requiring hospitalization were encountered: three postoperative fevers (two in the hysterectomy group and one in the myomectomy group), one episode of septic pelvic thrombophlebitis (in the endometriosis group), one excess blood loss requiring transfusion (myomectomy group), and one urinary retention with poor pain control in the endometriosis group. One major complication (<1%), a bowel obstruction secondary to adhesions, was encountered and managed by repeat laparoscopy and lysis of adhesions (hysterectomy group). Conclusion: This analysis demonstrates that advanced operative laparoscopy, including laparoscopic hysterectomy, when performed by an experienced laparoscopist, can be completed safely in an outpatient setting with few complications.

Disclosure: Camran Nezhat, MD - This author has relevant financial relationships with the following commercial interests: Grant/Research Support: PlasmaJet, Storz; Shareholder: Aragon, Avantis. Chandhana Paka, MD and M. Ali Parsa, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Modified Laparoscopic Radical Hysterectomy in Treatment of Severe Endometriosis

Camran Nezhat, MD  
Stanford University Medical Center, Palo Alto, California

James Xie, BS; Louise P. King, MD, JD

Introduction: The quality of life of patients with severe endometriosis is greatly impacted, most commonly by symptoms of pelvic pain. Here we describe the use of laparoscopic modified radical hysterectomy for the treatment of extensive and deeply infiltrating endometriosis. Methods: A retrospective chart review study was conducted on patients with severe stage IV endometriosis who underwent laparoscopic modified radical hysterectomy. All patients had a history of extensive endometriosis that failed medical treatments and caused significant recurrent
symptoms. All but four patients had at least one prior surgery for the same indication. Results: A total of 22 patients underwent laparoscopic modified radical hysterectomy for endometriosis between October 2006 and August 2011. All patients had stage IV endometriosis. The most common preoperative symptom was chronic pelvic pain. Adjunctive procedures including salpingo-oophorectomy, appendectomy, enterotomy, ureterotomy/ureteroneocystotomy, and in one case segmental colon resection, were performed depending on the extent of the disease. Mean patient age was 44 years (range 32-50). Mean hospital stay was 2 days (range 1-3). Postoperative complications included 1 case of urinary retention, 1 vaginal cuff abscess, and 1 case of pyelonephritis. Mean follow-up was 6 months (range 1-53). All patients reported dramatic pain relief and there were no reports of symptom recurrence. Conclusion: In severe cases of endometriosis, the use of laparoscopic modified radical hysterectomy is a feasible and effective method for achieving long term improvement in pain symptoms.

Disclosure: Camran Nezhat, MD - This author has relevant financial relationships with the following commercial interests: Grant/Research Support: PlasmaJet, Storz; Shareholder: Aragon, Avantis. Louise P. King, MD, JD - This author has no conflicts of interest to disclose relative to the contents of this presentation.

Abdominoplasty at the Time of Hysterectomy: Assessment of Perioperative Morbidity
Emery M. Salom, MD
Florida International University, Hialeah, Florida
James West; MD, Manuel A. Penalver, MD

Introduction: Today, there is increasing interest from patients in combining cosmetic procedures, such as an abdominoplasty, with medically necessary procedures such as hysterectomy. The perceived benefits of such a combination include reduced overall healing time, less time spent in a hospital overall, and reducing risks from anesthesia to one procedure instead of two separate procedures. An additional motivation given today’s economy are the economic savings associated with having two procedures done during one surgical procedure. Methods: This is a retrospective analysis of a case series of 65 patients who underwent combined abdominoplasty and hysterectomy between 1995 and 2011. We evaluated surgical time, estimated blood loss, operative time, intraoperative complications, wound infections, and long term complication. Results: The mean age was 46 years (+ 8.3), the average weight was 184 lb (+ 58), and the average body mass index was 31.9 (+ 9.9) for the case series. Additionally, the average time of surgery was 210 min (+ 69.3), and the average length of hospital stay was 3.8 days (+ 1.8). Overall complication rate was 32% including: transfusion (3%), Fever (10%), UTI (2%), atelectasis (9%), and wound complications (8%). No major complications were reported. Conclusion: In this the largest case series to date, the results suggest that combined abdominoplasty and hysterectomy is a safe an effective way to help patients attain both cosmetic and medically important outcomes in the same surgical procedure.
Improved Prediction of Endometriosis - DNA Markers Combined With Clinical Risk Factors

Kenneth Ward, MD
Juneau Biosciences, LLC, Salt Lake City, Utah
Hans Albertsen, PhD; Rakesh Chettier, MS

Introduction: Endometriosis is a common, chronic gynecologic disorder associated with infertility and pelvic pain; definitive diagnosis requires surgical biopsy. Various clinical risk factors (early menarche, primary dysmenorrhea, short cycles, or heavy prolonged menses), physical exam, and imaging studies are not sufficiently predictive. The purpose of this study was to determine whether DNA markers associated with endometriosis can improve clinical prediction. Methods: The study included 150 Caucasian women with endometriosis and 150 with no evidence of endometriosis on laparoscopy. DNA samples were genotyped in a blinded fashion using Taqman for 60 single nucleotide polymorphisms associated with endometriosis. Genotype data were interpreted using a logistic regression algorithm to estimate each patient’s risk of having endometriosis. Prior probability of having endometriosis was calculated based on presence or absence of: early menarche, 1st degree relative, primary dysmenorrhea, and parity. Posterior risks were calculated using Bayesian analyses. Results: The 60 DNA marker panel predicted each individual’s risk of endometriosis ranging from near zero to near 100% risk. The area under the receiver operator characteristic curve was 0.80. Using this simple model, over 50% of affected women could be correctly classified as having a high (greater than 95%) risk of having endometriosis and the majority of unaffected women were correctly classified as having a low (less than 5%) risk of having endometriosis. Conclusion: Preliminary results are encouraging. Additional improvements are likely as no interaction terms or biologic pathway data were considered in this initial model.

Disclosure: Kenneth, Ward, MD and Hans Albertsen, PhD - These authors have relevant financial relationships with the following commercial interests: Shareholder and employee of Juneau Biosciences, LLC. Rakesh Chettier, MS - This author has relevant financial relationships with the following commercial interests.

Optimal Combination of Cervical Spectroscopy with Cytology and Human Papillomavirus: Implications for Clinic Efficiency

Marc L. Winter, BS, MD
Orange Coast Women’s Medical Group, Laguna Hills, California
Daniel R. Sternfeld, BS, MD

Introduction: To assess the best way of combining multimodal hyperspectroscopy
(MHS) with other tests using data collected from a multicenter prospective study. Methods: Data were analyzed from a prospective Phase III study that enrolled 1,607 women referred to colposcopy and biopsy at seven centers, including 804 that returned for follow-up. On the day of study, each woman underwent MHS (Guided Therapeutics, Inc. Norcross, Georgia), had a specimen taken for cytology and human papilloma virus (HPV) testing and colposcopy. Biopsy specimens were reviewed by a panel of histopathologists to determine a final diagnosis by which MHS and other tests were compared. Results: Data were analyzed for 1,330 women; 561 free of dysplasia, 575 with Cervical Intraepithelial Neoplasia 1 (CIN1) and 194 with Cervical Intraepithelial Neoplasia 2 or 3 (CIN2+), including 21 interval CIN2+ found during up to two year follow up. For MHS alone, sensitivity was 87.1%, compared with 72.2% for cytology and 81.4% for HPV. The best combination of tests in terms of sensitivity and negative predictive value was MHS and HPV with a sensitivity of 99.4% (172/173), NPV of 99.5% and detection of 19/21 interval CIN2+ (90.5%). MHS combined with HPV would have reduced the number of unnecessary referrals to biopsy by 33.2% (186/561) for women without dysplasia. Conclusion: Use of MHS prior to HPV produced near perfect sensitivity and NPV while increasing efficiency by reducing unnecessary colposcopies and increasing the yield of positive biopsies. KEY WORDS: cervical cancer screening, Pap tests, HPV, colposcopy, spectroscopy, cytology, dysplasia.

Disclosure: Daniel R. Sternfeld, BS, MD - This author has relevant financial relationships with the following commercial interests: Investor: Guided Therapeutics. Marc L. Winter, BS, MD - This author has no conflicts of interest to disclose relative to the contents of this presentation.

Infectious Diseases

Completion of Human Papmillovirus Vaccination Series Lags in Somali Adolescents
Crystal N. Pruitt, BS
Mayo Clinic Rochester, Rochester, Minnesota
Abdirashid M. Shire, PhD; Douglas J. Creedon, MD, PhD

Somali immigrant women are less likely to have Pap tests, putting them at increased risk for developing cervical cancer. With the introduction of the human papmillovirus (HPV) vaccine, an additional tool to prevent cervical cancer became available. However, it is unknown whether this population is likely to be compliant with HPV vaccine recommendations. The purpose of this study is to determine if Somali girls are participating in HPV vaccination. Methods: We conducted a retrospective cohort study of HPV vaccination among Somali girls seen at Mayo Clinic Rochester. Girls between the ages of 9 and 18 were identified using the Rochester Epidemiology Project. Each Somali subject was matched by year of birth to White/non-Hispanic subjects in a 1:3 ratio. Outcome measures were HPV vaccine series initiation and
completion. A chi-squared test was performed to compare outcome variables between study cohorts. Girls without a provider interaction during the study period were excluded from study analysis. Results: 251 Somali and 727 white/non-Hispanic girls were included in final study analysis. Vaccine initiation rates among Somali (45.40%) and white/non-Hispanic (45.90%) girls were similar (odds ratio [OR]: 0.98, 95% confidence interval [CI]: 0.73-1.31), however Somali girls were less likely than their white/non-Hispanic counterparts to complete the vaccine series. Of those who initiated the vaccine series, 51.75% of Somali girls completed the series compared to 71.86% of the white/non-Hispanic girls (OR: 0.42. 95% CI: 0.27-0.65). Conclusions: Vaccine initiation rates suggest acceptance of HPV vaccination but reduced completion rates may render this tool ineffective at preventing cervical cancer in this population.

Disclosure: Crystal N. Pruitt, BS; Abdirashid M. Shire, PhD and Douglas Creedon, MD, PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Ultrasound Findings of Congenital Syphilis and Timeline to Resolution After Penicillin Therapy

Martha W. Frazier Rac, MD
University of Texas Southwestern Medical Center, Dallas, Texas
George D. Wendel, MD; Jeanne S. Sheffield, MD

Introduction: The ultrasound findings of syphilis have been well described in the literature. As the rate of primary and secondary syphilis continues to rise, the purpose of this study is to re-evaluate the ultrasound findings of congenital syphilis and establish a timeline to resolution of these findings after adequate treatment.

Methods: This was a retrospective chart review from November 1997 to June 2011 of gravidas diagnosed with syphilis after 20 weeks of gestation. At our institution, these women receive an ultrasound prior to treatment to evaluate for evidence of congenital syphilis. The ultrasound is then repeated every 4 weeks until resolution of abnormal findings. The patient demographics, antenatal ultrasound findings, stage of syphilis, gestational age at diagnosis and each subsequent ultrasound were evaluated. Standard statistical analyses was performed for categorical and continuous data. Results: 177 women had an ultrasound identified; 62 (35%) had evidence of congenital syphilis, the majority in women with early stage disease. Abnormalities identified included hepatomegaly, (84%), abnormal MCA doppler measurements (28%), placentomegaly (15%), ascites (2%) and polyhydramnios (2%). Hepatomegaly remained present in 74% of women who had at least one follow-up ultrasound. MCA Doppler abnormalities resolved more rapidly, with the majority normalizing by the first follow-up ultrasound. Conclusion: Ultrasound evidence of congenital syphilis was common in women diagnosed with early stage disease after 20 weeks of gestation, with hepatomegaly being most prevalent. The timing to resolution of these findings remained variable. Further investigation will define the
relationship between persistent ultrasound abnormalities and ongoing fetal infection.

Disclosure: Martha W. Frazier Rac, MD; George D. Wendel, MD and Jeanne S. Sheffield, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Patient Perspectives of Flu Vaccination and H1N1 Vaccination in Pregnancy
Anita P. Tamirisa, DO
Summa Akron City Hospital, Akron, Ohio
Amy M. Burkett, MD; Shruti Malik, MD

Introduction: Pregnant women continue to have the lowest influenza vaccine coverage rates despite evidence supporting the safety of the vaccination. This goal of this study was to assess the opinions of postpartum women regarding seasonal flu and H1N1 vaccinations during pregnancy. The primary objective is to evaluate the proportion of postpartum women that received the seasonal and H1N1 vaccines in 2009-2010 compared with the seasonal flu vaccine in 2008-2009, while assessing media influence in decision-making. Secondary objectives include evaluating patient rationale for choosing to get vaccinated, perception of vaccine safety and of passive fetal immunity. Methods: This prospective nonrandomized cross-sectional study was conducted at a community hospital over a 6-week period. A standardized survey was distributed to postpartum women aged 13-50 years of age (n = 237). Results: 59% stated they received the seasonal flu vaccine and 61.7% received the H1N1 vaccination in 2009-2010, up from 46.6% the previous year (P <.0005). The most common reason patients chose to receive either vaccine was “Physician or Nurse Recommendation” (63% and 61.7%, respectively). Women chose not to receive the seasonal vaccine due to “Other” reasons (37.3%). Reasons women chose to decline the H1N1 vaccine was “Concern over Side Effects” (33.1%) and “Feeling the Vaccine was Unsafe” (33.1%). Conclusions: The majority of postpartum women chose to receive the seasonal and H1N1 flu vaccines in the 2009-2010 flu season. The most common reason patients cited was due to physician or nurse recommendation. Media played a small role in patient decision-making.

Disclosure: Anita P. Tamirisa, DO; Amy M. Burkett, MD and Shruti Malik, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Menopause

Effects of Kamishoyosan (Japanese Herbal Medicine) for Climacteric Disorders Compared With Hormone Therapy
Tsuyoshi Higuchi, MD, PhD
Hirosaki University, School of Medicine, Hirosaki, Japan

© 2012 The American College of Obstetricians and Gynecologists Tuesday Posters 34
**Hideki Mizunuma, MD, PhD; Kaori Iino**

Objectives: To investigate difference between hormone therapy and herbal medicine for climacteric symptoms. Methods: Eighty two women with climacteric symptoms and hoped to take a medicine were enrolled. Under informed consent they were divided into three groups randomly. First is treated with hormone therapy (HT) (HT group, 24 cases), second is with herbal medicine using Kamishoyosan (KSS group, 29 cases) and third is with both (HT/KSS group, 29 cases). We compared the effects among three groups during treatment using some scales as described below. Depression, anxiety and sleep disturbance are assessed by SDS, HAS and PSQI respectively at baseline, 4 and 8 weeks after. For each symptom, its strength is also assessed at baseline and 8 weeks after. Results: There were no significant differences among three groups at the baseline. SDS were significantly decreased in KSS and HT group at 4 weeks and 8 weeks after and in HT/KSS group at 8 weeks after, HAS were also decreased significantly in all groups at 4 and 8 week after, PSQI were also decreased significantly in KSS group at 4 and 8 weeks after and in other two groups at 8 weeks after. There were no significant change among three groups at 4 weeks and 8 weeks after. For each symptom, HT was more effective for vasomotor symptoms and palpitation, on the other hand KSS for dizziness and palpitation. Conclusion: Assessing with scales, there were similar effects among three groups for psychogenic disorders but effect for each symptom might be different.

**Disclosure:** Tsuyoshi Higuchi, MD, PhD and Kaori Iino - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

**Obstetrics**

**Attempted and Successful TOLAC Following New ACOG Guidelines: Patient Characteristics**

*Lindsay Abcunas, BA*

*University of Massachusetts, Worcester, Massachusetts*

*Shannon Demas; Tiffany A. M. Simas, MD, MPH, MEd*

Purpose: To investigate demographic differences in: (1) subjects attempting trial of labor after cesarean section (TOLAC) versus undergoing elective repeat cesarean delivery (CD) and (2) subjects with successful VBACs (Vaginal Birth after Cesarean) versus failed TOLAC attempts following the August 2010 ACOG Technical Bulletin (#115) on VBACs. Methods: Retrospective review of deliveries at Massachusetts tertiary care center from 6 months (September 2010 through February 2011) following ACOG’s published TOLAC guideline change. Exclusion criteria: nulliparous, no CD history, ≥3 CDs and/or contraindication to labor (e.g., previa, malpresentation, history classical CD or myomectomy or active herpes). Potential covariates considered were race, body mass index, gestational weight gain, admission cervical exam, labor characteristics, induction/augmentation agents, delivery anesthesia, fetal weight and medical comorbidities. Results: Of 1,966 deliveries, 71 deliveries...
were TOLAC eligible with the following associated rates of attempt (43.7%, 31/71) and success (77.4%, 24/31). Subject (n = 71) characteristics associated with TOLAC attempt versus nonattempt were: ruptured membranes (78.57% versus 35.09%, \( P = .006 \)), spontaneous labor (84.62% versus 34.48%, \( P = .001 \)), absence of preeclampsia (50% versus 15.38%, \( P = .031 \)) and one versus two CD history (50.88% versus 14.29%, \( P = .016 \)). Subject (n = 31) characteristics not significantly associated with TOLAC success versus failure was absence of ruptured membranes (90% versus 54.55%, \( P = .067 \)). Conclusions: Despite ACOG’s TOLAC endorsement for women with 2 prior CDs, immediately following the revised guidelines practices had not changed. It should be noted that women in this time cohort were likely counseled under previous guidelines. With passage of time, increasing provider experience and proper patient counseling, trends in TOLAC attempts merit further monitoring.

Disclosure: Lindsay Abcunas, BA; Shannon Demas and Tiffany A. M. Simas, MD, MPH, MEd - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

[41] Systemic Review of Basal Bolus Insulin Analogue Therapy in Pregnancy

Diana Aldape, MD
Albert Einstein College of Medicine, Bronx, New York
Cassandra E. Henderson, MD

Objectives: To evaluate safety and efficacy of insulin analog in pregnancy complicated by any diagnosis of diabetes. Outcome measures: Maternal and neonatal hypoglycemia, macrosomia, congenital malformation. Methods: Pubmed, Medline and Cochrane library were searched for randomized clinical trials, prospective and retrospective reports using terms: lispro, apart, glargine, detemir, pregnancy and diabetes. Search limited to human and English language Results: 15 studies identified that assessed safety/efficacy of short acting insulin analogues lispro and aspart use in diabetes in pregnancy. 13 studies identified that assessed the efficacy of long acting insulin analogues glargine and detemir use in diabetes in pregnancy. Bonferroni procedure was used for statistical analysis with comparison for proportion with 95% confidence and 0.05 significance. Level of < 0.01 was considered significant. Conclusions: Compared to NPH insulin, insulin analog use in pregnancy has been associated with significant decrease neonatal hypoglycemia. No significant difference in outcome measure for maternal hypoglycemia, macrosomia and congenital malformation was found. Similar decrease in A1C was observed in both NPH and Glargine treated groups. Our study (N = 799) for prenatal exposure to long acting insulin analogue is inadequately powered to definitively conclude an absence of any adverse affect associated with insulin analog therapy in pregnancy. However, short and long acting insulin analog therapy during pregnancy has not been associated with any adverse maternal and neonatal outcome. Our findings support the use of BBT with insulin analogue during pregnancy to facilitate the continuity of medical management of diabetes during preconception and prenatal period.
Fetal Movement Education Among U.S. Ob-Gyn Providers: A Nationally Representative Survey

Robert O. Atlas, MD
Mercy Medical Center, Baltimore, Maryland
Kathy J. Helzlsouer, MD; Ryan MacDonald, PhD

Introduction: A national survey of obstetricians-gynecologists (ob-gyn) and nurse midwives was conducted to assess current practices and attitudes regarding educating women on monitoring fetal movement. This survey assessed current practice, use of kick-count charts or other methods of education, and perceived benefit of formal instruction. Methods: A nationally representative sample of ob-gyn physicians and Certified Nurse Midwives obtained through Medical Marketing Service, Inc. were sent a 28-item online survey. Descriptive statistics (frequencies and analysis of variance tests) were used to analyze responses. Results: A total of 1068 providers responded; 56% ob-gyn physicians and 44% nurse midwives. A majority of respondents (87.3%) formally instruct or educate mothers on monitoring fetal movement with 40% reporting educating women beginning prior to week 28 with no significant differences between physicians and nurse midwives. Almost 93% of respondents have heard about “kick count charts” to formally assess fetal movement, however, only 60% report using them with patients. Formal instruction and education of fetal movement did not vary significantly between physicians and nurse midwives; however, physicians were more likely than nurse midwives to agree that kick count charts are useful only for high risk women and help women to notice daily fetal movements ($P < .05$). Regional differences in the use of kick count charts were observed with highest use in the West compared to other regions ($P < .001$). Conclusion: Fetal movement education and practice varies by region and type of provider. Further research is needed to determine how and when to educate women about fetal movement.

Disclosure: Robert O. Atlas, MD; Kathy J. Helzlsouer, MD and Ryan MacDonald, PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Racial Disparities and Gestational Age at Delivery of Twin Gestations

Stephen J. Bacak, DO, MPH
Akron General Medical Center, Northeast Ohio Medical University, Akron, Ohio
John W. Stewart, MD; Karen M. Gil, PhD

Introduction: Nearly 50% of twin gestations are born prematurely. Historically, black
women are at an even greater risk for preterm delivery. The purpose of this study was to examine racial disparities and potential risk factors for preterm delivery among women with twin pregnancies. Methods: This retrospective cohort study used data from the National Center for Health Statistics 1995-2000 Matched Multiple Birth File. The study population included 319,683 women with twin pregnancies. Data were analyzed using SPSS version 19.0. Significance was set at a \( P < .05 \) Results: Black women had significantly higher rates of preterm delivery at 24-31 weeks gestation (15.3% versus 9.2%) and 32-33 weeks gestation (9.8% versus 8.6%) while rates of late preterm (34-36 weeks) delivery were significantly higher among white women (36% versus 32.1%). A greater proportion of black women had less than a high school education compared to white women (62.8% versus 43.5%). Black women were significantly more likely to have chronic hypertension at all gestational ages and to be diagnosed with pregnancy-related hypertension and eclampsia at term gestation. White women had significantly higher rates of pregnancy-related hypertension, diabetes, placental abruption and placenta previa at 24-31 weeks and pregnancy-related hypertension at 32-33 weeks. Conclusions: Black women with twin pregnancies are at increased risk for delivering at earlier gestational ages. Identified risk factors did not seem to contribute to this striking difference. Further research is needed to elicit the relationship between race, potential risk factors, and gestational age at delivery among twin gestations.

Disclosure: Stephen J. Bacak, DO, MPH; John W. Stewart, MD and Karen M. Gil - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Prophylactic Antibiotics for Prevention of Endometritis Following Manual Extraction of the Placenta

Dana C. Baras, MD, MPH
Virginia Commonwealth University Health System, Richmond, Virginia
Dana L. Redick, MD; Nicole W. Karjane, MD

Introduction: Manual extraction of the placenta after vaginal delivery may increase the risk of postpartum infections such as endometritis. The benefit of antibiotics in this setting is debated and our study evaluates the prevalence and success of antibiotic treatment. Methods: At two academic medical centers, we retrospectively reviewed 203 cases of women with manual extraction following vaginal delivery. The primary end points were the diagnosis of endometritis and use of antibiotics including indication. Additionally, we recorded demographic information, labor details including cervical exams, duration of ruptured membranes, and whether an operative delivery was performed. Results: In our cohort, the prevalence of endometritis in women who did not receive any antibiotic therapy was 4.35% (3/69), in those who received antibiotic therapy specifically for prophylaxis was 0% (0/65), and in those who received any form of antibiotic therapy was 1.42% (2/141). We also observed that more than five manual cervical exams significantly increased the risk of endometritis (Fisher's Exact test \( P < .05 \)), while duration of rupture of membranes and operative delivery were not significantly associated with increased risk of
endometritis. Conclusions: Although our findings did not demonstrate statistical significance, there was a reduction endometritis with prophylactic antibiotic therapy as compared with women who received no antibiotic therapy (Fisher’s exact test $P = .13$). Based on these results, we would recommend antibiotic prophylaxis for women who have a manual extraction of the placenta.

Disclosure: Dana C. Baras, MD, MPH - This author has relevant financial relationships with the following commercial interests: Spouse employed by Vanda Pharmaceuticals. Nicole W. Karjane, MD - This author has relevant financial relationships with the following commercial interests: Trainer for Nexplanon. Dana L. Redick, MD - This author has no conflicts of interest to disclose relative to the contents of this presentation.

Neonatal Outcomes of Late-Preterm Birth: A Community Hospital Experience
Paul D. Bobby, MD
Stamford Hospital, Stamford, Connecticut
Tracy Shevell, MD

Introduction: The rate of preterm birth has increased in the US over the last 10 years. Late-preterm cases (>34 weeks gestation) compose the majority of such births. This retrospective cohort study was performed to evaluate the causes and outcomes of preterm birth over a three year period in a community hospital. Methods: Cases of preterm birth between 2006-2009 were identified through review of delivery logs. Medical records of selected cases were reviewed and cases where birth occurred between 34+0 weeks gestation and 36+6 weeks gestation were identified. Data was abstracted regarding maternal and neonatal hospital course. Causes of preterm birth and selected neonatal outcomes were compared for cases occurring at 34, 35 and 36 weeks’ gestation. Results: Of 10,061 live births, 810 preterm births were recorded (8%). 535 births occurred at 34-36 weeks gestation. Causes of late preterm birth included: PROM (35%), preterm labor (23%), hypertension(16%), IUGR(8%) and oligohydramnios(7%). The incidence of neonatal complications, including RDS, hyperbilirubinemia and feeding difficulty strongly correlated with gestational age at birth. Hyperbilirubinemia was the most common complication of prematurity, affecting 53% of infants born after 34 weeks gestation. Two deaths were noted. At least one complication of prematurity was observed in 90%, 65% and 47% of infants born at 34 weeks, 35 weeks and 36 weeks gestation, respectively. Conclusion: In a community hospital, 66% of all preterm births occurred after 34 completed weeks gestation. Neonatal complications were common in this cohort.

Disclosure: Paul D. Bobby, MD and Tracy Shevell, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Cervical Cerclage: A Retrospective Review of Preoperative Indications and Pregnancy Outcomes
LaRae C. Brown, MD
Introduction: To investigate patient characteristics, preoperative indications, and subsequent pregnancy and neonatal outcomes for patients who underwent cervical cerclage placement in an academic, tertiary care center. Methods: This was a retrospective cohort analysis of data from patients who underwent cervical cerclage placement from 2004-2010 at the University of Florida College of Medicine-Jacksonville. The study population was defined by their preoperative indication for cerclage including ultrasonographic, historical, and physical exam related diagnoses. Our analysis included the following outcomes: gestational age at delivery, prolongation of pregnancy, labor and delivery complications, and neonatal outcome. Results: For gestational age at delivery (weeks) the results were as follows: ultrasound group 30.2 ± 6.6, historical group 34.4 ± 5.6, and physical exam group 24.7 ± 5.6, *P* < .05. Prolongation of pregnancy associated with cerclage varied significantly between the three groups, with the ultrasound group gaining 10.0 ± 6.6 weeks, the historical group gaining 17.0 ± 6.2 weeks, and the physical exam group gaining 4.8 ± 5.3 weeks, *P* < .05. Neonatal intensive care unit admission and neonatal death were observed more frequently in the physical exam group when compared to the ultrasound and historical group. Conclusion: This single-institution retrospective cohort study confirms that women undergoing cerclage are at high risk for preterm birth. Cerclage placement indicated by physical exam findings is associated with poorer pregnancy outcomes when compared with indications based on ultrasound findings or historical findings. Our findings suggest that counseling provided to cerclage patients or those considering cerclage should vary with respect to the indication for this procedure.

Disclosure: LaRae C. Brown, MD and Luis Sanchez, Ramos, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

**Providers’ Perceptions of Counseling Regarding Extremely Preterm Birth: A Qualitative Approach**

*Niraj R. Chavan, MD, MPH*

*Flushing Hospital Medical Center, Flushing, New York*

*Allan J. Jacobs, MD, JD; Lourdes Cohen, MD*

Introduction: The purpose of this study was to identify key issues pertaining to the knowledge, attitudes and practices among obstetric providers for parental counseling regarding extremely preterm birth from 23+0 to 26+6 weeks gestation, using a qualitative research-based exploratory approach. Methods: We conducted four semistructured focus groups, using a maximum variation based purposeful sampling strategy, among 28 obstetric providers including ob-gyn residents, L&D nurses and midwives, of differing religious, cultural and ethnic backgrounds and varying practice experiences. The sessions were audiotaped, transcribed, and analyzed using
qualitative techniques to create specific “codes” and identify key recurrent and differential “themes,” using the constant comparison method of qualitative analysis.

Results: A recurrent theme involved the emphasis on morbidity outcomes rather than survival statistics alone, especially in a litigious climate. The barriers to effective counseling, as identified by respondents included differences in level of education, depth of comprehension of the consequences of preterm birth, sociocultural and religious beliefs among parents, and parity. Participants believed that the key determinants affecting parental decision-making were availability of a social support system, type of professional offering counseling, and the manner in which counseling was conducted. The providers also discussed whether preemptive counseling or the initiation of discussion at the time of threatened delivery was preferable.

Conclusions: The dynamics of the provider-patient relationship are uniquely challenged in a delicate situation of counseling about extremely preterm birth. Qualitative research methodology has identified themes and issues that will form the basis for further research using a quantitative approach.

Disclosure: Niraj R. Chavan, MD, MPH; Allan J. Jacobs, MD, JD and Lourdes Cohen, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

[48] Proteomics of Preeclamptic Placenta

**Monique V. Chireau, MD, MPH**  
*Duke University Medical Center, Durham, North Carolina*  
**Brenna M. Richardson, PhD; J. Will Thompson, PhD*

Introduction: Research suggests that placentally-produced proteins may cause the clinical manifestations of preeclampsia (PE/E). Vascular endothelial growth factor (VEGF), VEGF receptor 1 (VGFR1), endoglin and placental growth factor (PIGF), thought to be secreted by the placenta, have been implicated in PE/E’s pathogenesis. Prior proteomic studies have identified as many as 296 proteins from 293 genes in placenta. The purpose of this study was to identify placental proteins, especially those differentially expressed in women with and without PE/E.

Methods: Placentas were collected from five preeclamptic and four normal women. A dual TRizol (guanidium-thiocyanate-phenol-chloroform) protocol was used to generate TRizol-soluble and sonication-soluble fractions from each patient, which were analyzed using two-dimensional liquid chromatography-mass spectrometry/mass spectrometry (LC/LC-MS/MS). Results: 2,051 proteins from 1,977 unique genes were identified from placental samples, 691 from the TRizol fraction, 634 from the sonication fraction, and 726 from both. After correction for multiple testing, 46 proteins in the TRizol fraction and 19 proteins in the sonicated fraction were differentially expressed between preeclamptic and non-preeclamptic women. VGFR1 and endoglin were identified in both TRizol and sonication fractions, however, VEGF and PIGF were not. Conclusions: Comprehensive quantitative proteomic analysis of placental tissue identifies proteins which are expressed differentially in preeclamptic
and nonpreeclamptic women. VEG-F and PGF were not identified, possibly suggesting that these proteins are produced extraplacentally, or are in extremely low abundance in placenta. Although it appears that differentially-expressed proteins in the placenta may discriminate between preeclamptic and nonpreeclamptic women, further research is needed to explore these associations.

Disclosure: Monique V. Chireau, MD, MPH and J. Will Thompson, PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation. Brenna M. Richardson, PhD - This author has relevant financial relationships with the following commercial interests: Spouse employed by GlaxoSmithKline.

Differences in Twin Delivery Case Mix at a Teaching Hospital Compared With Local Regions
Aldon E. Corle, MD
University of Kansas School of Medicine-Wichita, Wichita, Kansas
Linda M. Frazier, MD, MPH; Margaret H. O'Hara, MD

Objective: To develop a case-mix adjustment method for comparing local to regional twin birth outcomes. Methods: Electronic medical records from twin births of at least 22 weeks gestation among black or white mothers at a tertiary-referral teaching hospital and de-identified birth record data for the state were examined using univariate statistics and logistic regression. Results: There were 1,142 eligible teaching hospital infants and 8,353 eligible infants in the state. Using county of birth to develop regional groups, no regions in the state had risk profiles similar to the teaching hospital. One in 14 (7.6%) teaching hospital mothers had a history of preterm birth compared to 2.4% of mothers in the state; 35.5% of teaching hospital mothers were nulliparous compared 19.9% of state mothers. Twin mothers in the region (Region A) with a population density most similar to that of the teaching hospital's region had better unadjusted outcomes. For example, birth weight less than 1,500 g occurred in 14.4% of teaching hospital twin infants, 9.2% of twin infants in Region A, 8.9% of all twin infants in the state. Similar results were found for birthweight less than 2,500 g and prematurity. After controlling for maternal age, body mass index, previous preterm birth and nulliparity using logistic regression, the adjusted odds ratios for these adverse birth outcomes at the teaching hospital were not elevated compared to regional rates. Conclusion: Geographic differences in obstetrical risk factors suggest that comparison of unadjusted regional twin outcomes with those at a teaching hospital may be misleading.

Disclosure: Linda M. Frazier, MD, MPH and Margaret H. O'Hara, MD PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Negative Pressure Wound Therapy to Prevent Postcesarean Complications in Morbidly Obese Women
Katrina S. Daley, MD

© 2012 The American College of Obstetricians and Gynecologists Tuesday Posters 42
University of Maryland Medical Center, Baltimore, Maryland
Lindsay S. Alger, MD; Mishka Terplan, MD, MPH

Introduction: Obese women are known to have a high rate of wound complication following cesarean sections. We sought to evaluate the efficacy of negative pressure wound therapy (NPWT) in decreasing complications when placed over clean, closed incisions post cesarean section in obese patients. Methods: This was a retrospective cohort study comparing rates of wound complications following cesarean sections in morbidly obese women prior to and following the institution of standard use of prophylactic NPWT. All women with a body mass index greater than 45 undergoing cesarean section between Sept 1, 2008 and Sept 30, 2010 in a single institution were included. The main exposure was NPWT, which began in Sept 2009, versus standard wound dressing used in the previous year. The main outcome was wound complication defined by ICD-9-cm codes. Demographic and wound outcomes were compared with Chi-squared and t-tests. Stata v 11.0 was used for all analysis. Results: A total of 63 women met inclusion criteria, 21 of whom received NPWT. The control and study groups were similar in all characteristics studied with the exceptions of length of surgery (64 versus 76 minutes, \( P = .03 \)), length of labor (78 versus 261 minutes, \( P = .02 \)), and age (29.5 versus 26.1), respectively. There were 6 wound complications in the control group (12.5%) and none (0%) in the study group (\( P = .17 \)). Conclusions: This pilot study shows a trend toward fewer wound complications in morbidly obese women receiving NPWT following cesarean section. Further investigation is warranted.

Disclosure: Katrina S. Daley, MD; Lindsay S. Alger, MD and Mishka Terplan, MD, MPH - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Perinatal Mortality of Planned Out of Hospital Births Transferred to an Oregon Hospital, 2004-2008
Lani Doser, MN, FNP-C
Oregon Health and Science University, Portland, Oregon
Janice E. Snyder, RNC, BA, BSN; Stella M. Dantas, MD

Introduction: In Oregon planned out of hospital birth outcomes are not consistently documented through vital statistics and either licensed or unlicensed providers may attend these births. Methods: A five-year (January 1, 2004 to December 31, 2008) retrospective study was conducted to examine the outcomes of maternal and neonatal cases transferred to an Oregon tertiary care referral center during a planned home or birth center birth. Results: 229 cases were identified. Of the 223 cases with documented neonatal outcomes, eight deaths were found. One infant died at greater than seven days of life; thus, seven of the 223 neonates met perinatal mortality definition 1 (PMD1), death between 28 weeks gestation and seven days of life. Findings suggest a PMD1 for planned out of hospital births among cases
transferred to the study hospital of 31 ([13 to 64] confidence interval [CI] 95%) per 1,000. Of the eight deaths, one infant had congenital anomalies that were not compatible with life. The following higher risk conditions were associated with the seven other deaths: breech presentation (three cases), pregnancy-induced hypertension (PIH) or preeclampsia (four cases), and postdates gestation (two cases). Seven of the eight deaths had licensed direct entry midwives and an unlicensed midwife cared for the one case with anomalies. Conclusion: This is the first published data in Oregon examining planned out of hospital births transferred to a tertiary care facility. Our findings suggest that more research is needed to assess the maternal/fetal risk factors or provider-related factors that may have contributed to the higher incidence of perinatal mortality.

Disclosure: Lani Doser, MN, FNP-C; Janice E. Snyder, RNC, BA, BSN and Stella M. Dantas, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Limited Course of Antibiotic Treatment for Chorioamnionitis
Patrick Duff, MD
University of Florida, Gainesville, Florida
Lauren P. Black, BA; Lindsay D. Hinson-Knipple, MD

Objective: To evaluate the effectiveness of a limited course of antibiotics for treatment of chorioamnionitis. Methods: We conducted a retrospective review of patients treated for chorioamnionitis at the University of Florida from 2005-2009. Patients were treated intrapartum with ampicillin (2g IV q 6 h) plus gentamicin (1.5 mg/kg IV q 8 h). Postpartum, patients received only the next scheduled dose of each antibiotic, and then antibiotics were discontinued. Patients who had a cesarean delivery received one dose of clindamycin (900 mg IV) or metronidazole (500 mg IV) immediately after cord clamping to provide specific coverage against anaerobes. The primary outcome was treatment failure, defined as persistent postpartum fever requiring either continuation of the original antibiotics or a change in antibiotic therapy. Results: 423 patients were included. 399 (94%) were treated successfully and 24 (6%) failed short-course treatment. 19 of the treatment failures had persistent endometritis and responded to continuation of antibiotics. Seven patients had more serious complications: wound infection (4) and septic thrombophlebitis (3). All serious complications occurred after cesarean deliveries. The majority of the patients who failed treatment were morbidly obese and had prolonged inductions of labor, followed by an arrest of dilation. Conclusion: A limited course of antibiotics is sufficient for virtually all patients with chorioamnionitis who have a vaginal delivery. This therapy is also sufficient for most patients who have cesarean deliveries. A small subset of patients who have cesarean deliveries (morbidly obese, delivered for an arrest of dilation after prolonged induction) merit extended antibiotic therapy.

Disclosure: Patrick Duff, MD; Lauren P. Black, BA and Lindsay D. Hinson-Knipple, MD -
Closure of Pfannenstiel Skin Incisions at Cesarean Delivery: Metallic Versus Absorbable Staples

Catherine Feese, MD
TriHealth, Cincinnati, Ohio
Donna S. Lambers, MD; Emily M. Jones, MS

Objective: To compare postoperative pain, cost effectiveness, speed of closure, and patient satisfaction of Pfannenstiel skin incisions closed with traditional metallic staples versus absorbable staples at cesarean delivery. Methods: This was a prospective, randomized controlled trial. Women undergoing a scheduled cesarean delivery were randomized to receive either absorbable staples or metallic staples. The patient and nurse were blinded to the device by identical dressings that remained in place until discharge. Postoperative pain was assessed using a 10-cm Visual Analog Scale (VAS) on postoperative day 1 and on the day of discharge. The total number and type of oral narcotics taken during the postoperative period were analyzed. Participants were asked to complete a questionnaire the day of discharge and at their 6 week visit. Results: Of the 100 patients enrolled in the study, 50 received the absorbable and 50 received the metallic staples. Based on the VAS, there were no significant differences between the 2 groups on postoperative day one and day of discharge. The time for skin closure was significantly different: 3.5 ± 1.7 minutes for absorbable and 1.39 ± 0.7 minutes for metallic staples. There were no significant differences in the number of oral narcotics taken or wound complication. The average cost of each device including placement and removal was $285.60 for the absorbable and $150.79 for the metallic staples Conclusion: Patient satisfaction, postoperative pain, and wound complication rates are comparable for both devices. The absorbable staple closure time and therefore cost is significantly greater than traditional metallic staples.

Disclosure: Catherine Feese, MD; Donna S. Lambers, MD and Emily M. Jones, MS - These authors have no conflicts of interest to disclose relative to the contents of this presentation.
from January 2005 to June 2011 were collected from an electronic record system. We compared two ACOG indications: “fast” or “psychosocial” (to serve as controls), with their previous and subsequent labor duration. Results: A total of 479 inductions with 821 previous deliveries were evaluated: 150 history of fast labor (Fast) and 651 psychosocial (PS) deliveries. Fast had a median previous total labor length of 5.5 hours (confidence interval [CI]: 4.5-6), which was significantly shorter than PS (median 10 hours; CI 9-10.5; \( P < .001 \)). Subsequent delivery time from start to expulsion was significantly shorter (\( P < .001 \)) for Fast (6.8 hrs CI: 6-8) versus PS (9.1 hours CI: 9-9.7). Fast had a shorter time from induction start to labor onset (Fast median = 3.5 hours CI: 3-4.8; PS median = 6.8 hours CI: 6.3-7.6), but a similar second stage (Fast median = 18 minutes CI: 13-22; PS median = 20 minutes CI: 18-22).

Discussion: Women electively induced for a history of fast labor do have faster previous labors, delivering their previous pregnancies in about half the time. Women subsequently induced for a history of fast labor do actually deliver more quickly. This benefit occurs before second stage but may not warrant the potential risks and costs associated with the procedure.

Disclosure: Bradford W. Fenton, MD, PhD; Erica L. Melrose, DO and Tiffany H. Kenny, RN - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Bioactivity of Serum hCG in Preeclampsia and its Pregnancy Curve

Luis F. Garcia, MD
Mercy Hospital and Medical Center, Chicago, Illinois
Gabriela Palecek, MD

Objectives: 1) to compare the serum bioactive and immunoactive hCG levels in pregnant patients with and without preeclampsia, and 2) to create a bioactive hCG curve throughout normal pregnancies. Material and Methods: Blood samples were taken from 125 normotensive pregnant women (between weeks 5 and 42) and from 38 women with preeclampsia (in the third trimester). The samples from normotensive women were used to create a bioactive hCG curve throughout pregnancy. The samples of the preeclamptic women as well as of normal pregnant women pregnancies were compared regarding immunoactivity, bioactivity, and B/I (Bioactive/immunoactive) ratio of hCG. Results: The bioactive hCG curve is similar to the immunoactive one. The immunoactive hCG concentration tended to be higher and the bioactive hCG concentration to be lower in women with preeclampsia than in normotensive pregnant women; the difference was statistically significant, \( P < .05 \). Also, the ratio of bioactive to immunoactive hCG (B/I) was significantly lower in patients with preeclampsia. Conclusion: Our findings confirm an association between increased maternal immunoactive serum hCG levels and preeclampsia, and diminish of the bioactive part of this molecule in preeclamptic women. The B/I ratio is lower in patients with preeclampsia. We also found that the levels of bioactive hCG
throughout pregnancy made a curve that is similar to the immunoactive hCG curve. The information obtained could be used to help determine whether or not the bioactive hCG level early in pregnancy can predict preeclampsia. However our study was a pilot and further research is needed.

Disclosure: Luis F. Garcia, MD and GabrielaPalecek, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Timing of Delivery and Maternal and Neonatal Outcomes

Dzhamala Gilmandyar, MD
University of Rochester, Rochester, New York
Brittany M. Paivanas; Oluwateniola Brown

Introduction: Daytime delivery is theoretically advantageous over night/weekend (N/W) deliveries. We evaluated maternal and neonatal outcomes for nonanomalous fetuses by the timing of delivery. Methods: Retrospective review of term nonanomalous fetuses, at a single institution between January 2000 and December 2010. To control for effect of induction and scheduled cesarean (SCD) on outcome, deliveries were grouped into: all deliveries; excluding SCD; or spontaneous labor only. Time of delivery was stratified into weekday (Day: 7am to 7pm Monday-Friday) and N/W (7 pm to 7 am, or weekend). Chi-square, Mann-Whitney U, and t-testing were used for univariate analysis. Linear and logistic regression (odds ratio [OR] with 95% confidence interval [CI]) adjusted for baseline group differences. Results: Of 16,425 patients, 8,764 were weekday and 7,661 N/W. Day was associated with decreased maternal interventions OR 0.81 (0.75-0.87), infant antibiotics OR 0.81 (0.71-0.92), and infant oxygen at delivery (OAD) OR 0.70 (0.54-0.93). There was no difference in CD, 5-minute Apgar score, NICU admit, or mortality. After exclusion of SCD, day was associated with decreases in NICU admit OR 0.87 (0.76-0.98), infant antibiotics OR 0.78 (0.68-0.90), and OAD OR 0.71 (0.52 0.96). For spontaneous labors, day was associated only with decreased infant antibiotics OR 0.77 (0.63-0.93) and OAD OR 0.61 (0.403-0.936). Conclusions: There were few statistically significant differences in neonatal and maternal outcomes based on day vs. N/W delivery. After adjustment and exclusion of inductions and SCD, only infant antibiotic administration and OAD were significantly improved. These findings suggest few advantages, and those few of small degree, for day delivery.

Disclosure: Dzhamala Gilmandyar, MD - This author has relevant financial relationships with the following commercial interests: Spouse employed by Pfizer, Inc. Brittany M. Paivanas and Oluwateniola Brown - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

The Affect of Team Training on the Rate of Neonatal Brachial Plexus Injury

James A. Greenberg, MD
**Brigham and Women’s Hospital, Boston, Massachusetts**

**Michelle R. Davis, MD; Thomas F. McElrath, MD, PhD**

Objective: To determine if staff education and team training exercises for obstetric emergencies such as shoulder dystocia affects the risk of neonatal brachial plexus injury.

Methods: A prior dataset of all births at Brigham & Women’s Hospitals from September 1, 1998 through August 31, 2009 was reviewed again. The number of births, mode of delivery, shoulder dystocias, and neonatal brachial plexus associated with shoulder dystocias were recorded for each year. A non-parametric test of trend was performed.

Results: There were 94,842 births with 953 shoulder dystocias and 102 brachial plexus injuries. In 2004, a program of mandatory biennial simulated obstetrical emergency team training was introduced. There was no change in the rate of brachial plexus injuries.

Conclusions: Increased staff education and team training exercises did not affect the risk of neonatal brachial plexus injury.

Table 1. Annual data of clinical events

<table>
<thead>
<tr>
<th>Year</th>
<th>Births</th>
<th>C/S%</th>
<th>Vag</th>
<th>SD</th>
<th>BPI</th>
<th>BPI/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>9456</td>
<td>23%</td>
<td>7273</td>
<td>83</td>
<td>4</td>
<td>0.55</td>
</tr>
<tr>
<td>2000</td>
<td>9587</td>
<td>24%</td>
<td>7332</td>
<td>126</td>
<td>17</td>
<td>2.32</td>
</tr>
<tr>
<td>2001</td>
<td>9711</td>
<td>25%</td>
<td>7273</td>
<td>90</td>
<td>11</td>
<td>1.51</td>
</tr>
<tr>
<td>2002</td>
<td>9681</td>
<td>25%</td>
<td>7238</td>
<td>113</td>
<td>7</td>
<td>0.97</td>
</tr>
<tr>
<td>2003</td>
<td>9149</td>
<td>28%</td>
<td>6573</td>
<td>88</td>
<td>14</td>
<td>2.13</td>
</tr>
<tr>
<td>2004</td>
<td>8738</td>
<td>30%</td>
<td>6136</td>
<td>68</td>
<td>7</td>
<td>1.14</td>
</tr>
<tr>
<td>2005</td>
<td>8203</td>
<td>32%</td>
<td>5611</td>
<td>76</td>
<td>3</td>
<td>0.53</td>
</tr>
<tr>
<td>2006</td>
<td>8002</td>
<td>31%</td>
<td>5532</td>
<td>65</td>
<td>10</td>
<td>1.81</td>
</tr>
<tr>
<td>2007</td>
<td>8115</td>
<td>31%</td>
<td>5606</td>
<td>107</td>
<td>15</td>
<td>2.68</td>
</tr>
<tr>
<td>2008</td>
<td>7852</td>
<td>34%</td>
<td>5205</td>
<td>64</td>
<td>7</td>
<td>1.34</td>
</tr>
<tr>
<td>2009</td>
<td>6348</td>
<td>33%</td>
<td>4285</td>
<td>73</td>
<td>7</td>
<td>1.63</td>
</tr>
</tbody>
</table>

*Z-score: -3.01, -1.85, -0.31, 0.63*

*P-value: 0.003, 0.07, 0.759, 0.53*

*The nonparametric test for trend performs a nonparametric test for trend across ordered groups.*

Disclosure: James A. Greenberg, MD; Michelle R. Davis, MD; and Thomas F. McElrath, MD, PhD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

[58] **Safety Concerns About Physical Activity Among Pregnant Women**

**Melissa J. Hague, MD**

**University of Kansas School of Medicine - Wichita, Wichita, Kansas**

**Elda M. Perales, MD; Margaret H. O’Hara, MD**

Objective: To assess safety concerns which may help explain why most women do
not follow ACOG guidelines on physical activity during pregnancy. Methods: Ninety women between 16-30 weeks gestation from 8 prenatal clinics and one community-based prenatal pregnancy program completed semistructured telephone interviews. Results: Nearly half (46.7%) of women reported performing at least 90 min. of moderate exercise per week before pregnancy, but only 26.7% of women were exercising at this level during pregnancy ($P = .022$). Predictors of exercising at least 90 minutes per week during pregnancy were regular exercise before pregnancy (adjusted odds ratio [OR] 4.39, 95% confidence interval [CI] 1.26-15.3, $P = .020$), confidence for overcoming time constraints (adjusted OR 3.80, 95% CI 1.09-13.3, $P = .036$), and being employed (adjusted OR 4.15, 95% CI 1.05-16.4, $P = .043$). Safety beliefs associated with current exercise included the belief that a physical activity session which lasts longer than 30 min. is safe (62.5% versus 18.2% of exercisers versus nonexercisers held this belief, $P <.001$), and that exercising more than 5 days per week is safe (62.5% versus 28.8%, respectively, $P = .004$). Nonwhite women were less likely to believe that brisk walking is safe (60.0% versus 88.9%, of nonwhite versus white women, respectively, $P = .013$) and that swimming is safe (66.7% versus 90.3%, respectively, $P = .030$). Conclusions: Women have concerns that exercise will harm their infant and these beliefs impact their activity level once they become pregnant. Education and counseling on specific guidelines for safely exercising during pregnancy may help more women comply with physicians’ recommendation for prenatal physical activity.

Disclosure: Melissa J. Hague, MD; Elda M. Perales, MD and Margaret H. O’Hara, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Measuring the Impact of Obstetricians on Maternal Health Outcomes and Referral Networks in Ghana

**Evelyn Hall, BA**
*University of Michigan Medical School, Ann Arbor, Michigan*

**Frank W. J. Anderson, MD, MPH; Kwabena A. Danso, MD**

Introduction: Postgraduate training in Obstetrics and Gynecology in Ghana has been successful in retaining human resource capacity with 83 of the 85 trained specialists remaining in Ghana. Qualitative studies have demonstrated improvements in facility capacity, utilization rates, and complication treatment rates between facilities with and without obstetricians. The purpose of this study is to quantitatively assess these differences. Methods: Four district hospitals with obstetricians and five without were selected for retrospective and prospective analysis. Maternity indicators from routinely collected data for the Ghana Health Service were analyzed for 24 months, or 12 preceding the arrival of the obstetrician and the most recent 12 months. A comprehensive health facility register was developed and implemented at the nine hospitals to determine referral, case fatality and complication treatment rates. Data collection is ongoing. Results: Retrospective data analysis reveals that upon the arrival of an obstetrician corresponded with an influx of patients: 39% increase in
number of births compared to a 5% increase during the same period at non-obstetric facilities. At their facilities, the arrival of obstetricians produced a 27.4% decrease in fresh stillbirths, a 39.1% decrease in postneonatal deaths, a 260% increase in malaria treatment in pregnancy. In comparing obstetric to nonobstetric facilities, the rate of fresh stillbirth was 0.009 versus 0.014, neonatal deaths 0.009 versus 0.001, and malaria treatment 0.137 versus 0.095. Conclusions: Retrospective data indicates that the arrival of an obstetrician has significant impact on the management of complications and on patient utilization rates. Prospective data analysis is forthcoming.

Disclosure: Evelyn Hall, BA; Frank W. J. Anderson, MD, MPH and Kwabena A. Danso, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Gestational Weight Change in Obese Women and Perinatal Outcome
Sangeeta Jain, MD, MMS
University of Texas Medical Branch, Galveston, Texas
Elizabeth A. Cloninger, MD; Patricia van den Berg, PhD

Obesity is a major health problem affecting pregnant women with increased risk for cesarean section, preeclampsia, preterm birth, macrosomia and childhood obesity. Institute of Medicine (IOM) recommends gain of 10-15 lbs for such women. Our aim was to study the association of net weight gain/loss during pregnancy in obese women and pregnancy outcome. Method: Medical records of obese pregnant women, on entry for prenatal care, were studied over a period of 2 years. Chi-square and regression analyses were used to examine the association between gestational weight gain/loss and type of delivery (spontaneous vaginal vs. primary Cesarean), duration (in minutes) of pitocin, and neonatal weight (in kg). For the analysis of type of delivery, women who had elective repeat Cesarean deliveries were excluded from the analysis. Results 162 medical records were reviewed so far. Weight gain during pregnancy was divided into 4 categories: 0 (loss or no weight gain; n = 21), inadequate (<10lb weight gain; n = 30), adequate (10 to 15lb weight gain; n = 19) and excessive (>15.1lb weight gain; n = 89). There was a significant association between gestational weight change and neonatal weight (P <.01). Women, who had adequate or excessive gestational weight gain, had significantly heavier babies than women who lost weight during pregnancy. Furthermore, the average neonatal weight born to women in the weight loss category was well within the healthy range. Gestational weight change was not statistically significantly related to type of delivery (P = .93), nor to duration of pitocin (P = .32). Conclusion: Obese women who lose weight during pregnancy may have infants with lower, but still healthy, neonatal weights.

Disclosure: Sangeeta Jain, MD, MMS; Elizabeth A. Cloninger, MD and Patricia van den Berg, PhD - These authors have no conflicts of interest to disclose relative to the contents of
Risk Factors for Preterm Twin Delivery Vary by Gestational Age

Stephanie M. Kempke, MD
University of Kansas School of Medicine - Wichita, Wichita, Kansas
Darren M. Farley, MD; Margaret H. O’Hara, MD

Introduction: Characteristics of twins were analyzed by gestational age to help identify risk factors for prematurity at various weeks of gestational age (WGA).

Methods: Electronic medical records from twin births of at least 24 weeks WGA at a tertiary-referral teaching hospital during 1998-2010 were examined using logistic regression. Results: Of 72,530 deliveries, 1,254 were twin deliveries. The 3 largest race/ethnicity subgroups were further studied (1,013 twin deliveries: white, n = 838, 82.7%; Hispanic, n = 100, 9.9%; black, n = 75, 7.4%). There were 61 (6.0%) births at less than 28 WGA, 265 (26.2%) at 28-33.6 WGA, 365 at 34-36.6 WGA and 322 (31.8%) at 37 WGA or greater. After controlling for covariates, multigravida (versus no previous pregnancy) had a protective effect in all WGA subdivisions. A normal body mass index decreased prematurity risk only for gestations less than 28 WGA (adjusted odds ratio [OR] 0.513, confidence interval [CI] 0.281-0.935). Black race increased prematurity risk only at less than 34 WGA (adjusted OR 1.78, CI 1.03-3.06) whereas age less than 20 years nearly doubled this risk (adjusted OR 1.98, CI 1.12-3.51). Preeclampsia significantly increased prematurity risk only for near-term deliveries (34-36.6 WGA versus 37 or more WGA, adjusted OR 2.81, CI 1.58-5.02). Height, weight gain, chronic hypertension and diabetes had no significant effect on preterm delivery. Conclusions: Twin prematurity risk was increased among primigravidas, teens, women who were black or overweight-obese, and those with preeclampsia, although most effects varied by WGA. Further research is needed to identify reasons for the differences at various WGA, and develop preventive prenatal interventions.

Disclosure: Stephanie M. Kempke, MD; Darren M. Farley, MD and Margaret H. O’Hara, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Evaluating the Safety of Seprafilm® During Cesarean Delivery: A Randomized Trial

Daniel G. Kiefer, MD
Lehigh Valley Health Network, Allentown, Pennsylvania
Jarrett Santorelli, BS; Jolene C. Muscat, MD

Introduction: A sodium hyaluronate/carboxymethylcellulose absorbable adhesion barrier (Seprafilm®) has been shown to prevent adhesion formation after abdominal and pelvic surgery. We report safety data from a large, multicenter trial designed to
evaluate the safety and effectiveness of Seprafilm® for reduction of adhesions following cesarean delivery. Methods: A total of 754 patients that underwent cesarean delivery were evaluated in this prospective, randomized, multicenter, single-blind, controlled study. Patients undergoing both primary and repeat cesarean deliveries were randomized into Seprafilm® (n = 380) or no-treatment control groups (n = 374). Complications that occurred in the immediate postoperative period or within two months following surgery were evaluated. Telephone interviews and reviews of hospital medical records were performed to ascertain the post-operative course and incidence of complications. Results: There were no differences in the postoperative course (hematocrit, white blood cell count, oral narcotic or antibiotic use, and length of stay) between the study groups. Similarly, there were no differences in the incidence of complications. Five patients (1.3%) in the Seprafilm® arm were readmitted in the two months following randomization compared with 2 (0.5%) in the control arm (P = 0.45). Six patients (1.6%) in Seprafilm® arm reported a wound complication compared with 2 (0.5%) in the control arm (P = 0.29). Foreign body reaction was not reported in either group. Conclusion: There were no differences in the postoperative course or incidence of complications when Seprafilm® was used at the time of cesarean delivery.

Disclosure: Daniel G. Kiefer, MD; Jarrett Santorelli, BS and Jolene C. Muscat, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Non-Stress Testing and Maternal Perception of Movement in Twin Pregnancies

Inna V. Landres, MD
Weill Cornell Medical College, New York, New York
Eshanjit Sapra; Young Mi Lee, MD

Introduction: Our objective was to determine if maternal perception of twin activity correlates with findings on non-stress testing (NST). Methods: Consenting subjects with twin pregnancies at ≥ 32 weeks gestation were recruited to complete a survey at time of their NST. The NSTs were reviewed by two physicians who were blinded to survey response. The number of accelerations per time interval was calculated for each twin, and each NST was categorized as A>B, B>A or A=B. Interobserver reliability was compared using the Kappa statistic. Correlation between maternal perception of fetal movement and NST findings was evaluated using Chi Square and Fisher’s exact test statistic. Results: 55 subjects were included. There was moderate inter-observer agreement between the physicians reviewing NSTs (Kappa = 0.567). The mean gestational age was 33.1 ± 1.3 weeks, and 80% of subjects could distinguish separate twin movements at time of their NST with 88.9% able to classify movements as either A>B, B>A or A=B. A decrease in fetal movement of one or both twins at time of NST was reported in 27.3% of surveys. There was no correlation between maternal perception of fetal movement and NST findings (P = .951). There was also no correlation between maternal perception of decreased fetal movement and reactive
or nonreactive NST ($P = .171$). Conclusion: The majority of mothers could distinguish separate movement of their twins and identified one twin as more active. Despite this, there was no correlation between maternal perception of twin movement and objective NST findings of number of accelerations and reactivity.

Disclosure: Inna V. Landres, MD; Eshanjit Sapra and Young Mi Lee, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

The Increasing Cesarean Delivery Rate: A Contributor to Preterm Birth?

Lisa D. Levine, MD  
University of Pennsylvania Perelman School of Medicine, Philadelphia, Pennsylvania  
Michal A. Elovitz, MD; Sindhu K. Srinivas, MD, MSCE

Introduction: The number of cesarean deliveries (CD) is rising. Simultaneously, the preterm birth (PTB) rate remains largely unchanged despite new therapies. Our objective was to determine if prior CD increases the risk of PTB in a subsequent pregnancy. Methods: We performed a nested case control study within a large, prospective cohort study of women with singleton pregnancies who presented at 22-33 6/7 weeks with symptoms of PTL (4/09-6/11). Maternal history and delivery information were obtained through chart abstraction. Associations between categorical variables were calculated using χ2 analyses or fisher’s exact tests as appropriate. MVLR was used to control for confounders. Results: 595 women were analyzed in this cohort, among which 12% had a prior CD. The overall PTB rate was 39%. Although the association between prior CD and PTB less than 37, 34, 32, or 30 weeks was not statistically significant, the odds of PTB with prior CD progressively increase as gestational age decreases. When analysis was restricted to women whose only prior delivery was at term, there is no association between CD and subsequent PTB less than 37, 34, or 32 weeks. However, there was a strong association with PTB less than 30 weeks (odds ratio [OR]: 9.90 [1.26-78.07], $P = .03$) which persisted after controlling for race (adjusted OR: 8.33 [1.04-66.60], $P = .05$). Conclusions: PTB continues to be a significant public health problem. CD may be a risk factor for subsequent early PTB. Further research is warranted to evaluate this association while stratifying by indication for prior CD. MOD#21FY08-539 (Elovitz).

Disclosure: Lisa D. Levine, MD and Michal A. Elovitz, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation. Sindhu K. Srinivas, MD, MSCE - This author has relevant financial relationships with the following commercial interests – Research grants: Bayer, Wyeth (both through ACOG programs)

Is There An Increased Risk of Preterm Birth in Adolescents With Antenatal Depressive Symptoms

Elizabeth Marsh, MD  
Northshore University Health System, Evanston, Illinois  
Marci Adams, MPH; Richard K. Silver, MD
Objective: Pregnant women with depression appear to have a greater risk of preterm birth (PTB) while pregnant adolescents are thought to have an increased risk of antenatal depression compared to pregnant adults. The aim of this study was to determine whether the combination of antenatal depressive symptoms and adolescence negatively influences pregnancy outcome beyond the impact of either risk factor alone. Methods: A single-center database of 15,320 pregnant women who completed Edinburgh Postnatal Depression Scale (EPDS) from 2003-11 was utilized to identify adolescent women (ages 15-19 years) at risk for depression (Group 1). A second cohort (Group 2) matched 1:1 for maternal age, race, parity and insurance status was compared to Group 1 for the primary outcome of PTB (<37 weeks), as well as gestational age at delivery, birth weight and NICU admission. Two adult cohorts were constructed (Groups 3 and 4) using the same matching variables so that PTB risk could be assessed between adolescents and adults with and without depression risk. Results: 385 adolescents were identified; 60 (15.6%) had positive antenatal EPDS screens (Group 1). No significant differences in PTB or associated variables were observed between Groups 1 versus 2, 1 versus 3 or 2 versus 4: A significantly greater rate of PTB was noted in the unplanned comparison between Groups 3 and 4 ($P = .015$). Conclusion: While adolescent maternal age and antenatal depressive risk have been associated with PTB, our controlled observations do not support an increased risk in adolescent women who also have depressive symptoms during pregnancy.

Disclosure: Elizabeth Marsh, MD; Marci Adams, MPH and Richard K. Silver, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Are there More Obstetrical Complications Associated With Teenage (Younger Than 16 Years) Pregnancy?

Dimitrios S. Mastrogiannis, MD, PhD, MBA
Temple University School of Medicine, Philadelphia, Pennsylvania
Fadeke Oyeniya, MD; Stacey L. Jeronis, MD

Introduction: Although teenage pregnancy is on the decline in the US (39.1 per 1,000 in 2009 versus 41.5 per 1,000 in 2008), it remains significantly higher than the rate in most industrialized nations. It is known that teenage pregnancy is associated with obstetrical complications. There is however very little data regarding pregnancy outcomes in mothers younger than 16 years old. Additionally, there is conflicting data in the literature regarding vaginal delivery rates versus cesarean section in the teenage population. The objective of this study is to assess obstetrical outcomes and vaginal delivery rates in pregnant patients younger than 16 years of age compared with those 16-35 years of age. Methods: The data was obtained from a New Jersey perinatal dataset for the years 1997-2005, which included 1,004,116 pregnancies. Results: 4,649 (0.5%) pregnant patients were younger than 16 years old, and 844,683 (86%) pregnant patients were between 16 years and 35 years old. These young teenagers were more likely to have statistically smaller babies (3,079 g versus 3,306
g), more premature births (15% versus 9.8%), more preeclampsia (3.2% versus 2.1%), less gestational diabetes (0.1% versus 2.1%), and longer labors (12.4 h versus 9.2 h) than their counterparts. The vaginal delivery rates were significantly higher (82.7% versus 71.6%) than those in the older population. The decrease in cesarean section rates in the teenage group remained after correction for gestational age and birth weight at delivery. Conclusions: Teenage pregnancy remains a significant sociodemographic problem with many complications. Contrary to popular belief, vaginal delivery rates were higher in the very young pregnant mothers.

Disclosure: Dimitrios S. Mastrogiannis, MD, PhD, MBA; Fadeke Oyeniya, MD and Stacey L. Jeronis, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Predictors of Peripartum Blood Transfusion in Cesarean Section Patients: A Retrospective Review
Dimitrios S. Mastrogiannis, MD, PhD, MBA
Temple University School of Medicine, Philadelphia, Pennsylvania
Ihab Kamel, MD; Yanhua Li, MD

Introduction: Hemorrhage during cesarean section is a very common complication. Wise utilization and ordering of blood products requires understanding of the predictors of major hemorrhage requiring transfusion. The objective of this study is to analyze perioperative predictors for blood transfusion in patients undergoing cesarean section. Methods: Data for all patients undergoing cesarean section between January 1st and December 31st 2009 were collected at Temple University Hospital. A receiver operator curve (ROC) was performed for levels of hemoglobin and heart rate. Results: Of the 1,020 cesarean section patients, 10 patients received transfusion intraoperatively and 42 patients received transfusion within 48 hours. In scheduled cesarean sections (n = 320), preoperative hemoglobin < 9.8 g/dl and surgical bleeding were the chief predictors of blood transfusion. Placental complications, number of prior cesarean sections, and multiple gestations did not appear to be good prognostic factors. In non-scheduled or emergency cesarean sections (n = 700), the best predictors were hemoglobin < 9.8 g/dl, surgical bleeding, and placental abruption. Of the 1,020 cesarean sections, 569 patients were cross-matched without the blood being used. 32% of patients that were transfused did not have preoperative cross-matched blood. Heart rate over 108 in the recovery area was significantly associated with bleeding and postoperative transfusion within 48 hours. Conclusions: Although this complication is difficult to predict in the majority of patients who develop it, we believe that low preoperative hemoglobin < 9.5 g/dl, intraoperative surgical bleeding, placental abruption, and heart rate over 108 are good indicators for cross-matching for possible transfusion.

Disclosure: Dimitrios S. Mastrogiannis, MD, PhD, MBA; Ihab Kamel, MD and Yanhua Li, MD - These authors have no conflicts of interest to disclose relative to the contents of
Obesity Decreases the Success of Labor Induction

Dimitrios S. Mastrogiannis, MD, PhD, MBA
Temple University School of Medicine, Philadelphia, Pennsylvania
Helena Fotiou; Lorena Tinoco, MD

Introduction: Maternal obesity is associated with increased risk of preeclampsia, gestational diabetes, and cesarean delivery. Induction of labor has been increasingly used, and by 2006 23% of all births were induced. Failed induction is a common indication for abdominal delivery. It has been suggested that obesity can further increase induction failure rates. In this study, we investigated body mass index (BMI) classes and weight gain categories for their correlation with induction failure rates.

Methods: A retrospective cohort study was performed on 406 consecutive inductions of labor in term pregnant women at Temple University Hospital from 2009 to 2010. Of those, over 47% were induced electively, and the rest for medical indications. 182 (45%) were induced with prostaglandins, and 224 (55%) with mechanical methods (Foley catheter) followed by oxytocin administration. Patients were placed into groups based on BMI class and on gestational weight gain. Maternal obstetrical and neonatal data were collected and analyzed. Results: Overall, 31% of induced patients delivered by caesarian. Increasing BMI was shown to have a statistically significant increase in caesarian deliveries following labor induction. Patients with BMI > 40 had a 40% cesarean rate compared with 16% for those with BMI < 25. These results remained after correcting for gestational diabetes and macrosomia. Indications for induction, method of induction, neonatal complications, and maternal complications (including gestational diabetes) were similar between groups. Maternal weight gain groups, in contrast, were not statistically different in failed induction rates.

Conclusion: Increasing BMI class appears to be associated with increased failed induction rates.

Disclosure: Dimitrios S. Mastrogiannis, MD, PhD, MBA; Helena Fotiou and Lorena Tinoco, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Is Routine Third-Trimester Ultrasonography Useful for the Prediction of Shoulder Dystocia?

Stephanie M. Melka, MD
The Mount Sinai Hospital, New York, New York
Frederick Friedman, MD; Lauren A. Ferrara, MD

Objective: To determine if preterm third-trimester ultrasonography is predictive of shoulder dystocia. Study design: This study was Institutional Review Board approved with consent waived. This was a retrospective chart review of all shoulder dystocia cases identified in 2008 and 2009 at a tertiary care hospital. Patients were eligible for inclusion if they were nondiabetic and had a third trimester growth ultrasonography
performed prior to 37 weeks gestation. Forty-four patients who experienced shoulder dystocia and underwent ultrasonography were identified for inclusion; cases were matched with 88 controls that underwent similar ultrasonography on the same day as the index cases. Anthropomorphic measurements were recorded and analyzed for statistical significance. Results: For all measurements and ratios other than head circumference (HC) and femur length to abdominal circumference (FL/AC) ratio, there was a statistically significant difference between the two groups. The most significant differences were HC/AC \( (P < 0.0001) \) and FL/HC \( (P = 0.0006) \). FL, AC, and the FL to BPD ratio, in addition to estimated fetal weight, were correlated with risk for shoulder dystocia. For every 0.06 increase in FL/HC ratio above 0.21, there was a doubling of the shoulder dystocia occurrence. A similar doubling of risk was noted for every 0.05 decrease in HC/AC ratio below 1.05. Conclusions: Biometric variations in preterm third trimester ultrasound are associated with an increased risk of shoulder dystocia at term. In addition to estimated fetal weight, specific biometries can be used in the counseling of patients at risk for shoulder dystocia, as well as a quantification of this risk.

Disclosure: Stephanie M. Melka, MD; Frederick Friedman, MD and Lauren A. Ferrara, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

External Cephalic Version: A Comparison of Singleton Versus Noncephalic Twin A ECV

Robert M. Ore, MD
Wilford Hall Medical Center / San Antonio Military Medical Center, Ft. Sam Houston, Texas
Andrea D. Shields, MD; Barton C. Staat, MD

Objective: While external cephalic version (ECV) is utilized in the management of singleton breeches and malpresenting second twin, ECV of the nonvertex twin A has limited description in the literature. The purpose of our study is to retrospectively compare efficacy of singleton versus twin A ECV. Study Design: The study population included all twin pregnancies delivering at 34+0 weeks or greater at our center between January 2004 and June 2011, and all singleton pregnancies between January 2007 and January 2010. We compared ECV success rate, vaginal delivery rate, operative delivery rate, and maternal and neonatal morbidity between groups. Results: Of 16 attempts at twin A ECV, 8 cases (50%) were successful in comparison to 13/18 (72%) successful ECVs in the singleton cohort \( (P = 0.2906) \). The overall vaginal delivery rate in the twin group was 44% (7/16 cases), compared with 56% (10/18 cases) in the singleton cohort \( (P = 0.7319) \). Of the 8 successful ECVs in the twin cohort, 7 (88%) had successful vaginal deliveries. Mean birthweight for twin A was 2,745 g compared to 3,349 g for the singleton cohort \( (P = 0.0014) \). There were no statistically significant differences in the rates of maternal or neonatal morbidity. Conclusions: ECV success rates and successful vaginal delivery rates were similar between non-
cephalic twin A and singleton pregnancies. With limited description of twin A ECV in the literature, our study suggests ECV of noncephalic twin A may be an efficacious and safe alternative to cesarean delivery. Further study is necessary to validate our hypothesis generating report.

Disclosure: Robert M. Ore, MD; Andrea D. Shield, MD and Barton C. Staat, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

**Outpatient Misoprostol in the Management of Postterm Pregnancies**

**Krystal H. Pham, MD**

University of Nevada School of Medicine, Las Vegas, Nevada

**Elena I. Zenkin, MD; Marsha Matsunaga-Kirgan, MD**

Introduction: Postterm pregnancies: benefits of outpatient induction: 1) Provoke labor: avoid induction, limit postterm risks, or 2) Initiate cervical ripening: shorten inpatient induction, improve patient satisfaction, reduce costs. Misoprostol is an inpatient vaginal cervical ripening agent. Orally, plasma levels peak and fall within one hour (Kahn, et al). With one hour fetal monitoring after administration, oral misoprostol may be safe for outpatient induction. Objectives: Hypothesis: oral misoprostol given at routine postterm visits is convenient, safe, and effective. Methods: -Randomized, double-blind, placebo-controlled. -Pharmacist prepared “study capsules” containing either 75 microgram misoprostol (dosing equivalent to vaginal-25 microgram), or placebo. Patient “study numbers” were randomized to either misoprostol or placebo. Providers and patients remained blinded. -Enrolled pregnancies after 40+5/7 weeks, Bishops 5 or less. Assigned patient “study numbers” in chronologic order. -“Study capsule” was given at routine twice-weekly testing visits. Patient monitored for an hour, and sent home with written safety precautions. -Inductions for: Bishops 6 or more, routine obstetrical indications, or at 42 weeks. Results: One NICU admission in misoprostol group; with reassuring fetal tracing for initial 6 hours. No differences for other safety parameters. Time from initial “study capsule” to delivery was significantly reduced by 40 hours in the misoprostol group. There were no statistically significant differences in: - Incidence of spontaneous labor - Inpatient induction time - Postterm complications Conclusions: No adverse effects, however, our sample size is too small to make definitive conclusions about safety. Outpatient misoprostol shortened exposure to postterm risks. Did not find the expected increase in spontaneous labor, reduction in induction time, nor improved fetal outcomes.

Disclosure: Krystal H, Pham, MD; Elena I. Zenkin, MD and Marsha Matsunaga-Kirgan, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

**Does Body Mass Index Affect Preinduction Cervical Ripening?**

**Kelly E. Ruhstaller, MD**
Christiana Care Health System, Newark, Delaware
Anthony C. Sciscione, DO; Matthew K. Hoffman, MPH, MD

Introduction: We sought to determine the relationship between preinduction cervical ripening method and body mass index (BMI). Methods: We identified women form the Consortium of Safe Labor Database (a large retrospective cohort of 12 medical institutions) who received misoprostol (2,785) or the Foley catheter (1,015) for preinduction cervical ripening. Hierarchical (site specific) multivariable logistic regression was used to compare the rate of cesarean delivery between the two methods. Patients were grouped into BMI categories of less than 30, 30 to 40 and greater than 40. To compensate for potential selection bias, stabilized inverse probability weights calculated from propensity scores predicting ripening method were included in the model predicting cesarean delivery. Variables used to calculate the propensity scores included age, birth weight, parity, and race. Results: For women with BMIs less than 30 and 30-40 there is no difference in the rate of cesarean delivery between women receiving the Foley catheter versus misoprostol. However, women with a BMI greater than 40 who received a Foley catheter were 2.4 times more likely to have a cesarean delivery than those women who received misoprostol (see table). Conclusion: Misoprostol appears to be more effective than the Foley catheter for preinduction cervical ripening in terms of cesarean delivery for women with a BMI greater than 40.

<table>
<thead>
<tr>
<th>Method of Ripening</th>
<th>Adjusted Odds Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misoprostol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI ≤30</td>
<td>1.470</td>
<td>0.986-2.191</td>
</tr>
<tr>
<td>BMI 30-40</td>
<td>1.303</td>
<td>1.126-1.509</td>
</tr>
<tr>
<td>BMI ≥40</td>
<td>1.123</td>
<td>0.922-1.369</td>
</tr>
<tr>
<td>Foley catheter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI ≤30</td>
<td>1.000</td>
<td>--------</td>
</tr>
<tr>
<td>BMI 30-40</td>
<td>1.123</td>
<td>0.877-1.440</td>
</tr>
<tr>
<td>BMI ≥40</td>
<td>2.650</td>
<td>1.628-4.311</td>
</tr>
</tbody>
</table>

Disclosure: Kelly E. Ruhstaller, MD; Anthony C. Sciscione, DO; Matthew K. Hoffman, MPH, MP - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

[73] Maternal Perception of Fetal Movement in Twin Pregnancies
Eshanjit Sapra
Weill Cornell Medical College, New York, New York
Inna V. Landres, MD; Stephen T. Chasen, MD

Introduction: There is little published data about maternal perception of fetal movement in twin pregnancies. Our objective was to determine whether mothers can distinguish separate movements in 3rd trimester twin pregnancies and investigate any relationship between perceived fetal movement and maternal demographic or fetal factors. Methods: We conducted a cross sectional survey of consenting women at 28-37 weeks gestation presenting for their non-stress test between February and May 2011. Sixty one participants were asked to fill out a questionnaire detailing perception of twin movements. Demographic, ultrasound and delivery data were collected by chart review. Student t test and chi square test were used for statistical analysis. Results: The majority of women could distinguish separate movement of twins all or most of the time (63.9%). There was no relationship between the perception of separate twin movement and demographic factors, including maternal age, BMI, parity, or use of ART. There was also no relationship between maternal perception of fetal movement of either twin and chorionicity, fetal gender, presentation (cephalic or noncephalic), position (maternal right or left), placentation (anterior or posterior), presence of IUGR or relative birthweight (A>B versus B>A). A chi-square test for trend at 28-30, 31-32, 33-34 and 35-37 weeks showed no significant differences in ability to distinguish movement across gestational age. Conclusion: Most mothers can distinguish between fetal movement of twin A and B. There was no significant difference between maternal perception of fetal movement and any maternal or fetal factors examined. We also did not note a change in perception of fetal movement with advancing gestational age.

Disclosure: Eshanjit Sapra; Inna V. Landres, MD and Stephen T. Chasen, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Increased Cesarean Delivery in Diabetic Women With Elevated HgbA1c Levels
Hindi E. Stohl, MD
University of Southern California, Los Angeles, California
Anna Rogers; Joseph G. Ouzounian, MD

Background: Pregnancies complicated by pre-gestational or gestational diabetes mellitus (DM) are at risk for adverse obstetric outcomes. The use of glycosolated hemoglobin (HgbA1c) in risk-stratification during pregnancy is not well studied. As of 2010, a HgbA1c level of ≥ 6.5 is a diagnostic criterion for DM. We examine the utility of a baseline HgbA1c level during pregnancy and its potential prognostic implications. Methods: We performed an IRB-approved retrospective study of women with gestational or pre-gestational DM delivering at our institution. Clinical characteristics, laboratory data, and pregnancy outcomes were abstracted from electronic medical records. A baseline HgbA1c was defined as one drawn at the initial prenatal visit for women with pre-gestational DM or at the time of diagnosis for women with gestational DM. Data was analyzed using Student t-test for continuous variables and Chi-square for
categorical variables. \( P < .05 \) was considered significant. Results: Of 116 eligible women, 46 were excluded due to unavailable HgbA1c, and 70 were included. Forty-four women had baseline HgbA1c < 6.5 (Group A), and 26 women had baseline values ≥ 6.5 (Group B). There were no significant differences in maternal age, ethnicity, parity, history of prior cesarean delivery (CD), or GA at delivery between groups. Of women in Group A, 66% required insulin therapy compared to 89% of women in Group B. There was a statistically significant increase in neonatal birthweight \( (P < .008) \) and CD rate \( (P < .02) \) between groups. Conclusion: In a cohort of pregnant diabetic women, baseline HgbA1c levels may help identify women at risk of developing adverse pregnancy outcomes.

Disclosure: Hindi E. Stohl, MD; Anna Rogers and Joseph G. Ouzounian, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

### Shifting the Curve of Gestational Age at Delivery with 17P

**Julia Timofeev, MD**

**Washington Hospital System, Washington, DC**

**Christopher M. Zahn, MD; Rita W. Driggers, MD**

Objective: As gestational age at delivery (GAD) is inversely related to neonatal morbidity and mortality as well as healthcare costs, advancing a pregnancy beyond the historic GAD, even if not to term, provides benefits. Our goal was to examine if prophylactic treatment with weekly injection of 17 alpha-hydroxyprogesterone caproate (17P) creates a positive shift in GAD vs. the penultimate preterm delivery (PTD). Methods: Retrospective analysis of a cohort of 4,556 women with SPTD in the penultimate pregnancy enrolled in a 17P home administration program at 16-26.9 weeks’ gestation. Pregnancy outcomes were compared for the penultimate vs. current pregnancy using McNemar’s chi-square and Wilcoxon Signed Ranks tests, while maternal characteristics were compared for those women achieving a later GAD in the current pregnancy to those that did not using Pearson’s chi-square and Mann Whitney Rank Sum tests.

Results: Women received a median (range) of 17 (1, 26) 17P injections. Mean difference in current versus penultimate GAD was 5.2 ± 5.0 weeks. Greater GAD was achieved by 87.0%. Penultimate versus current outcomes in Table. Factors significantly associated with failure to achieve a greater GAD include a lean prepregnancy body mass index and history of more than 1 prior PTD.

<table>
<thead>
<tr>
<th></th>
<th>Penultimate PTD</th>
<th>Current 17P pregnancy</th>
<th>( p ) -value</th>
<th>OR 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAD (weeks)</td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>31.3 ± 4.4</td>
<td>37.0 ± 2.8</td>
<td>(&lt;0.001)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>33 (21, 36)</td>
<td>37.6 (21.1, 42.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPTD &lt;37</td>
<td>100%</td>
<td>30.8%</td>
<td>N/A</td>
<td>---</td>
</tr>
<tr>
<td>SPTD &lt;34</td>
<td>54.8%</td>
<td>8.7%</td>
<td>(&lt;0.001)</td>
<td>0.05 (0.04, 0.06)</td>
</tr>
<tr>
<td>SPTD &lt;32</td>
<td>37.0%</td>
<td>5.8%</td>
<td>(&lt;0.001)</td>
<td>0.07 (0.06, 0.08)</td>
</tr>
<tr>
<td>SPTD &lt;28</td>
<td>21.9%</td>
<td>2.2%</td>
<td>(&lt;0.001)</td>
<td>0.05 (0.04, 0.07)</td>
</tr>
</tbody>
</table>
Conclusions: With 17P prophylaxis women achieve a significantly greater GAD than their prior SPTD. This positive shift in GAD can result in reduced neonatal morbidity and costs.

Disclosure: Julia Timofeev, MD and Christopher M. Zahn, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation. Rita W. Driggers, MD - This author has relevant financial relationships with the following commercial interests: Speakers Bureau: Verinata but receives no proceeds personally (all are donated to a MFM Fellow educational fund).

Accuracy of Intrapartum Bladder Volume Estimation Using the Bladderscan Machine

Mari C. B. Trinidad, MD
St. Luke’s Hospital and Health Network, Bethlehem, Pennsylvania
James N. Anasti, MD

Objective: Estimation of bladder volume in laboring patients is essential in decreasing the number of catheterizations. Currently, this is done by bladder palpation and/or timed straight catheterizations. Several studies have suggested that measurement of the bladder volume using the Bladderscan machine (BSV) maybe a more accurate way of determining volume. However, none have looked at the effect of labor on BSV accuracy. In this study, we investigate the effect of dilatation and station on BSV determination. Method: The average of 3 BSV was performed in laboring patients at various dilations and stations. The actual bladder volumes (ABV) were then determined by straight catheterization. A percent error was calculated using the following formula: (ABV-BSV)/ABV x 100. Group A included patients with cervical dilation ≤ 6 cm and station ≤ 0. Group B patients had cervical dilation > 6 cm and station > 0. Percent error in the two groups were compared using Mann-Whitney Rank Sum Test. Results: Eighteen laboring patients had BSV measured and were subsequently straight cath for their ABV. All patients had an epidural in place. Group A (N = 12) median percent error was 14% and Group B (n = 6) was 62%. This was a significant difference (P <.001). Conclusion: In an effort to decrease catheter related urinary tract infections in laboring patients, an accurate estimation of bladder volume is needed. Although use of the bladder scanner may assist in this estimation, attention maybe necessary in those women in the later courses of labor. This study needs to be confirmed in a larger cohort of patients.

Disclosure: Mari C.B. Trinidad, MD and James Anasti, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Pregestational Insulin Resistance as a Risk Factor for Preeclampsia: A Case-Control Study

Enrique Valdes, MD
University of Chile Hospital, Santiago de Chile, Chile
Alvaro G. Sepulveda- Martinez, MD; Mauro Parra-Cordero, MD, PhD
Introduction: insulin resistance (IR) is a part of the metabolic syndrome, and is highly prevalent in reproductive age women. In pregnancy, IR has been related as a risk factor to develop preeclampsia (PE). Objective: to evaluate the relationship between pregestational IR (PIR) and the subsequent diagnosis of PE. Methods: nested case-control study of patients with PIR and a 1:5 proportion control group randomly selected from general population of pregnant women evaluated in the Maternal Fetal Medicine Unit of the University of Chile Hospital from January 2005 to May 2011. Clinical and hemodynamic parameters (first and second trimester uterine artery Doppler) were analyzed as predictors of PE through a multiple logistic regression analysis. Results: of 13,124 patients evaluated in the study period, there were 119 pregnancies with PIR background (0.9%). Maternal age and body mass index (BMI) was higher in PIR group than the control group. The prevalence of chronic hypertension prevalence was also higher in the study group. PE and gestational diabetes was developed in 8.4% and 9.2% of the PIR group versus in 4.2% and 2.9% of the control group ($P < .05$) respectively. After multivariate analysis only maternal age, chronic hypertension and increased resistance of uterine artery Doppler in first and second trimester were good predictors of PE, but PIR was not. Conclusion: although PIR is related with PE, other conditions related to IR, such as maternal age, chronic hypertension and increased BMI are better predictors of PE.

Disclosure: Enrique Valdes, MD and Alvaro G. Sepulveda-Martinez, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Comparison Of Data Collection Techniques In Reporting Elective Deliveries

Emily C. Von Bargen, DO
University of Massachusetts Memorial Hospital, Worcester, Massachusetts
Mark J. Manning, DO; Xun Liao, MS

Objective: Elective delivery from 37 weeks to 38.6 weeks gestational age is becoming a reportable statistic in many states. Our objective was to determine the presence or absence of discrepancies between billing/coding data versus individual chart review data collection techniques in identifying these rates. Methods: Retrospective cohort study performed at a Massachusetts tertiary care maternity center from April 2006 to January 2010. Vaginal and cesarean delivery between 37-38.6 weeks gestational age were included. Exclusionary criteria: medical induction of labor or delivery with acceptable ICD-9-CM codes including but not limited to active labor, spontaneous membrane rupture, preeclampsia, oligohydramnios, etc. Chart reviews independently performed by two obstetrician-gynecologists using aforementioned standardized criteria. Results: Rate of elective vaginal delivery using billing/coding data was 48.3%, versus 1.5% after chart review, revealing difference of 96.9%. Rate of elective cesarean delivery using billing/coding data was 42.5%, versus 14.8% after chart review, revealing difference of 35%. Conclusion: A significant difference between billing/coding data and
individual chart review was identified. Billing/coding data does not give an accurate representation of elective deliveries at our institution and will lead to state/regulatory reporting errors. The rate of elective cesarean delivery is high at this institution. Scheduling procedures need to be reviewed to reduce the rate of elective cesarean delivery prior to 39 weeks gestation. Quality officers should consider review of this type of discrepancy prior to reporting to state agencies.

Disclosure: Emily C. Von Bargen, DO; Mark J. Manning, DO and Xun Liao, MS - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

**Outcome of Twin Pregnancies Complicated by Fetal Growth Restriction (IUGR) and Discordance**

*Amanda M. Von Hoene, MD*

*TriHealth, Cincinnati, Ohio*

*Mounira A. Habli, MD*

Objective: The aim of this study is to investigate the outcome of intrauterine growth restriction (IUGR) in twin pregnancy in relation to growth discordance. Methods: This is a hospital based cohort study from our perinatal database of 133 twin pregnancies complicated by IUGR from 2003-2011. Triplets, chromosomal, TTTS, and structural abnormalities were excluded. IUGR was defined as twins with birth weight < 10th percentile. Outcome data included maternal demographics, preterm delivery (PTD ≤ 34 weeks), preeclampsia, mode of delivery, birth weight, and neonatal data. Data are stratified based on % growth discordance: ≤ 20% (n = 77), 21-30% (n = 23), > 30% (n = 33). Data were analyzed by Chi-square, t-test, and ANOVA as appropriate. Results: The rate of preeclampsia, PTD ≤ 34 weeks, CS, and NICU admission is 26% (n = 34), 42% (n = 56), 73% (n = 97), and 58% (77) respectively. 59% (n = 79) had both twins with IUGR. Overall, mean % discordance is 17.1±18.0. Mean gestational age at delivery is 34.3±2.9 weeks. As compared to those with growth discordance ≤ 20% (reference group), there is a significantly higher rate of preeclampsia (21% versus 39%, P = .05) and PTD < 34 weeks (30% versus 76%, P = .001). CS and NICU admission for both twins in those with growth discordance was greater than 30%. Conclusion: Twin pregnancies complicated with IUGR and growth discordance greater than 30% are at higher rate of PTD < 34 weeks, preeclampsia, and adverse neonatal outcomes. More research involving management protocols to decrease adverse pregnancy outcome in IUGR twin pregnancies especially if growth discordance is greater than 30%, are needed.

Disclosure: Amanda M. Van Hoene, MD and Mounira A. Habli, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

**Office Practice**

*What Do Women Want? Survey of an Academic Center Employees’ About Their Provider Choices*
Introduction: Low socioeconomic status and education level influence a woman’s provider choice. However, limited data exist on additional factors impacting choice. Methods: To identify attributes that women feel are important in choosing obstetrics and gynecologic providers, we conducted an online survey of University of Kansas Medical Center employees. Listed attributes for choosing a provider were scored using a Likert Scale (1=extremely not important; 5=extremely important). Attributes included insurance coverage, training level, gender, availability, hospital affiliation, and clinic amenities. Respondents were also asked to choose and rank 3 attributes most important to them in selecting a provider (1-3; 1=most important). Results: The majority of the 250 respondents were Caucasian (80%), between the ages of 19-39 (64%), and had a bachelors’ degree education or greater (88%). Almost 50% had an income of greater than $80,000. Overall, when choosing either an obstetric or gynecologic provider, insurance coverage (mean importance: 4.5, 4.6, respectively), physician availability (4.2, 4.2) and referral source (4.2, 4.1) were the most important factors. When individual factors were ranked, specialty, experience, and training level were consistently ranked highest. Women with female obstetric providers were more likely to rank sex as being important when choosing a new obstetric provider (mean rank: 1.8 versus 2.7, P <.001). We also found that women aged greater than 39 years were more likely to have a male provider (35.2% versus 14.7%, P <.001). Conclusion: Insurance coverage, physician availability, and referral source seem to be important factors in patients’ choice of obstetrics and gynecologic providers.

Disclosure: Alison G. Blevins, Catherine L. Satterwhite, PhD, MSPH, MPH and Madhuri G. Reddy, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Use of Electronic Medical Record Based Tools to Improve Compliance With Cervical Cancer Screening

Vance A. Broach, MD
Loyola University Medical Center, Maywood, Illinois
Lyndsey Jo Day, MD; Paula White-Prock, MD

ACOG has recently published updated cervical cancer screening guidelines however available tests are not often performed appropriately. This study aims to determine whether the use of the electronic medical record (EMR) is an effective tool in educating providers regarding appropriate screening. We performed a retrospective chart review at Loyola Medical Center from January 1st 2010 through December 31st. Results for patients age 30 and above and patients for whom a pap plus HPV co-test were ordered were reviewed for appropriateness. Appropriateness was compared between tests ordered before June 30th with tests performed after June
30th. Ordering a cotest after June 30th prompted the EMR to state “For triennial screening in low risk women aged 30 and older.” Ordering practices were stratified by department as well. Statistical analysis was done by Chi-Squared test. Of the 3,615 tests performed, 1,748 were performed prior to the implementation of changes in the EMR and 1,865 were performed after. Prior to implementation, the cotest was ordered appropriately 86.6% of the time and after, it was performed 89.9% of the time ($P = 0.019$). When stratified for department, OB GYN providers ordered the cotest appropriately 87.3% of the time prior to implementation and 89.5% of the time after ($P = 0.480$). By non–ob-yn primary care physicians, the cotest was ordered appropriately 83.4% of the time and 91% of the time after implementation ($P = .004$).

Conclusion: The electronic medical can be utilized as an effective tool for improving education and adherence to cervical cancer screening guidelines.

Disclosure: Vance A. Broach, MD; Lyndsey Jo Day, MD and Paula White-Prock, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

---

Knowledge of Cervical Cytology ASCCP Guidelines in Three University Hospitals in Puerto Rico

Keimari Mendez, MD

University of Puerto Rico - School of Medicine, San Juan, Puerto Rico

Idelvais Pinero; Nilmar Rodriguez-Batiz, MD

Introduction: Appropriate management of abnormal cytology and human papillomavirus (HPV) infection, is as important as screening tests to prevent cervical cancer. Aim is to evaluate knowledge of current ASCCP guidelines. Hypothesis is that inadequate management is mostly, a consequence of lack of knowledge of current guidelines. Methodology: Study population: 34 ob-gyn residents and 46 faculty from 3 university hospitals in PR. Instrument created based on current ASCCP guidelines, consisted of 10 clinical vignettes and 5 True/False. EPI-INFO2000 was used for database and statistical analysis. Results: 52 participants: 18 faculty and 34 residents, response rate 39% and 100%, respectively. 100% of faculty and 97% of residents referred knowing current ASCCP guidelines, but 17% and 6%, respectively, do not follow them. Reasons given were: more aggressive treatment for high risk, poor compliant and human immunodeficiency virus (HIV) patients. Relevant percentages of correct answers of faculty and residents, respectively, were: 39% and 73% about to start screening at 21 years; 50% both about HPV testing after LSIL; 50% and 69% regarding screening interval after abnormal result; 29% and 42% regarding ASCUS management; 18% and 12% regarding postmenopausal women with LSIL; 47% and 68% regarding management during pregnancy; 18% and 15% regarding AGC-NOS; and 35% and 39% regarding screening discontinuation. Conclusions: Faculty is less updated than residents in current guidelines, despite 100% referring knowing them. Knowledge deficient areas were management of: postmenopausal patients with LSIL, patients with AGC-NOS and ASCUS, screening discontinuation and screening interval after abnormal cytology. Intervention to improve guidelines knowledge is crucial to
optimize patient management.

Disclosure: Keimari Mendez, MD; Idelvais Pinero and Nilmar Rodriguez-Batiz, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Blue Ribbon

Improving Gardasil Vaccination Rates
Kerry Rut, DO
Winthrop University Hospital, Mineola, New York
Elana Kastner, MD; Wendy L. Kinzler, MD

Introduction: The objective is to determine whether the use of a reminder stamp improves the utilization of Gardasil vaccination. Methods: The baseline vaccination rate in our outpatient office from March 2010 - May 2010 was determined. Nonpregnant women aged 18-26 years were eligible. A “Gardasil Vaccination Reminder” stamp was created and progress notes were stamped from June 2010 to December 2010. Charts were assessed to establish a vaccination rate with the stamp. Women already completing the series were excluded. Preintervention and postintervention vaccination rates were compared using a t-test and Logistic regression was used to determine independent variables associated with vaccination. Results: Vaccination rates after institution of the reminder stamp (34/70, 49%) were significantly better than baseline (9/86, 11%), \(P < .0001\). The odds ratio was 4.64. Logistic regression demonstrated that age, type of insurance, reason for visit and history of abnormal PAP smears were not independently associated with vaccination. The only independent variable was use of the stamp. A discussion regarding Gardasil was documented in 22% (19/86) of charts without the stamp and in 90% (63/70) of the charts with the stamp (\(P < .0001\)). Conclusions: Our study demonstrated that the use of a reminder stamp was associated with greater than four-fold increase in vaccination rates. The increase in physician counseling likely led to this increase. Despite this, less than half of eligible women were vaccinated. Evaluation of counseling practices and reasons for patient refusal would help to further increase vaccination rates.

Disclosure: Kerry Rut, DO; Elana Kastner, MD and Wendy L. Kinzler, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Oncology

Fear of Recurrence Among Ovarian Cancer Survivors
Arvind Bakhru, MD, MPH
University of Michigan, Ann Arbor, Michigan
Alexander H. Harrington, BA; Jennifer J. Griggs, MD, MPH

Introduction: A majority of women who are treated for ovarian cancer will experience a relapse of their disease. Women with gynecologic cancer overwhelmingly view their oncologist follow-up visits as a mechanism to detect
recurrence. Yet, at completion of primary therapy, patients see their providers increasingly less often, while the anxiety of recurrence may persist. This study aimed to understand the recurrence concerns of women with a diagnosis of ovarian cancer and identify strategies for reducing patient anxiety. Methods: Women living with a prior diagnosis of epithelial ovarian, primary peritoneal, or fallopian tube carcinoma were identified through the University of Michigan Tumor Registry. Each cancer survivor was surveyed regarding their recurrence concerns using the Fear of Cancer Recurrence Inventory (FCRI), a validated scale measuring recurrence concerns in a multidimensional manner. Results: A total of 521 women were surveyed, and 49% responded. 95% of the 254 respondents completed the FCRI. Higher stage patients had greater recurrence concerns. Patients often reported not having had a conversation with the doctors regarding likelihood of recurrence. Recurrence concerns persisted after long after primary treatment had ceased. Fear of recurrence was associated with negative psychological well-being and was lowest among those who had taken an active role in the treatment decision making process. Those who perceived more patient-centered care were less likely to have concerns regarding recurrence. Conclusions: Those who perceived more patient-centered care and a greater role for participatory decision making were less likely to have concerns regarding recurrence.

Disclosure: Arvind Bakhru, MD, MPH; Alexander H. Harrington, BA and Jennifer J. Griggs, MD, MPH - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Outcomes of Hysterectomy via Robotic Versus Laparotomy in Elderly
Kellie E. Krase, MD
The Ohio State University, Columbus, Ohio
David M. O'Malley, MD; Floor J. Backes, MD

Objective: To compare outcomes between hysterectomy and lymphadenectomy via robotic versus laparotomy in elderly patients with endometrial cancer. Methods: Between 2003 and 2009, we retrospectively examined 746 women who underwent surgical staging either by robot (n = 471) or laparotomy (n = 275) for endometrial cancer at a single institution. Patient demographics, complication rates, pathologic results, and length of stay were analyzed. Cases that were intraoperatively converted to laparotomy were excluded. Results: 81/471 women were over 70 in the robotic group, compared with 93/275 women in the laparotomy group. In the elderly group, median age, bilateral pelvic or aortic lymph node counts, risk of readmission or reoperation showed no significant difference. Length of stay for women over 70 was decreased in the robotic group (median 1 versus 4 nights, \( P < .001 \)). Elderly patients received more frequent perioperative transfusions (2.5% versus 24.7%) after laparotomy but not after robotic staging. Ileus (2.5% versus 9.7%, RR 3.92, 95% confidence interval [CI] 0.87-17.62) and SBO (0 versus 3.4%, \( P < .005 \)) were seen more
frequently in the laparotomy group in women older than 70 years. Conclusion: Robotic surgery is safe and provides improved outcomes over laparotomy in elderly women with endometrial cancer.

Disclosure: Kellie E. Krase, MD; David M. O’Malley, MD and Floor J. Backes, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Annual Cost to the U.S. Medicare System of Bevacizumab in the Adjuvant Treatment of Ovarian Cancer
Kelly J. Manahan, MD
University of Toledo, Toledo, Ohio
Garth D. Phibbs, MD; John P. Geisler, MD

Objective: To determine the potential annual cost of adding bevacizumab to the adjuvant treatment of ovarian cancer (EOC). Methods: A cost-effectiveness analysis comparing intravenous carboplatin AUC 6 and paclitaxel 175 mg/m2 q 3 weeks (PC) to intravenous carboplatin AUC 6, paclitaxel 175/mg2 and bevacizumab 15 mg/kg q 3 weeks (with maintenance)(PCB) for the adjuvant treatment of EOC was performed. Actual and estimated costs of treatment and plus the potential costs of complications based on Medicare reimbursement and published data were established for each regimen. Results: Of the nearly 22,000 women who will develop EOC yearly, approximately 85% (18,598) will need chemotherapy after surgery. The cost of chemotherapy agents and infusion of them was $3,138.72 per person for PC and $190,630.47 per person for PCB. Annual cost to the U.S. economy for infusion of medications alone would be $27 million versus for PC versus $3.5 billion dollars, respectively. If cost per progression free life year (PFLY) is examined per person, it would be $14,656.46 per PFLY versus $184,305.54 per PFLY giving an incremental cost effectiveness ration (ICER) of $727,182.60 per PFLY increased. This is much higher than what is considered acceptable at an increase of $50,000 per life year saved. Thus, to increase on average 1 year of PFL (not survival) for each woman with EOC, the U.S. healthcare expenditure would have to increase spending on EOC alone by > $13.5 billion. Conclusion: At current Medicare drug and infusion expense levels, the United States cannot absorb the cost of PCB to only improve PFLY by an average of 3.8 months per patient.

Disclosure: Kelly J. Manahan, MD and Garth D. Phibbs, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation. John P. Geisler, MD - This author has relevant financial relationships with the following commercial interests: Speaker: Intuitive Surgical, Caris Life Sciences.

Primary Care

The Effect of Parity on Weight Gain Over Time
Sara Pentlicky, MD
University of Pennsylvania, Philadelphia, Pennsylvania
Background: Weight gain during pregnancy is physiologic, but recent data suggest that excessive weight gain in pregnancy is a risk factor for future obesity. The contribution that parity level lends, however, to a woman’s risk of becoming obese in her life is unknown. We hypothesize that a woman’s overall lifetime weight gain is not changed by the number of live births. Methods: We are analyzing data from 3,620 women who participated in the 1979 National Longitudinal Survey of Youth (NLSY). We are including women who have complete data on all data points described above, namely parity, body mass index (BMI) at 20 years, BMI at 40 years, smoking status, education level achieved, number of years receiving public assistance and race/ethnicity. We will conduct chi square analyses to document any individual risk factors for increased weight gain over time. Next we will perform logistic regression analyses to assess if parity alone remains an independent risk for weight gain over time controlling for the associated risk factors above. Results: Women with no live births and women with five or more live births are more likely to be obese than women who have had between 1 and 4 live births ($P = .014$, 95% confidence interval [CI] 2.7, 19.02) Conclusion: We conclude that both nulliparity and grandmultiparity (5 or more live births) are a risk factor for obesity after age 40.

Disclosure: Sara Pentlicky, MD; Ian M. Bennett, MD, MPH - These authors have no conflicts of interest to disclose relative to the contents of this presentation. Courtney A. Schreiber, MD, MPH - This author has relevant financial relationships with the following commercial interests: Consultant: Berlex Pharmaceuticals.

Reproductive Endocrinology/Infertility

Gestational Outcome of 875 Pregnancies Following Hysteroscopic Lysis of Intrauterine Adhesions

Charles M. March, MD
California Fertility Partners, Los Angeles, California
Richard P. Marrs, MD; Robert Israel, MD

Introduction: The literature is replete with reports of both poor gestational outcome and severe obstetrical complications in pregnancies initiated after treatment of intrauterine adhesions (IUA). Because those findings were not confirmed by our initial manuscript in 1978, we continued to monitor our patients. This report is the largest series of pregnancies following IUA therapy in one center. Methods: Between February 1, 1974 and March 31, 2011, 1,423 patients with IUA were treated by hysteroscopic lysis of adhesions (many with simultaneous laparoscopy), placement of an intrauterine stent and estrogen. Follow-up was by hysterosalpingography or office hysteroscopy and midcycle ultrasound of the endometrium. Selected patients were monitored for premature cervical changes and for placenta accreta. 828 patients have had 875 completed pregnancies. Results: Pregnancies occurred in 73% of those
with normal postoperative studies but in only 10% whose uteri remained abnormal. 141/875 (16.1 %) of the pregnancies resulted in spontaneous first trimester abortion. Additionally, five pregnancies were lost in four patients secondary to cervical incompetence. All those with cervical incompetence had had at least four prior cervical dilations. Fourteen pregnancies were complicated by placenta accreta and five of these patients underwent hysterectomy. Intrauterine growth restriction (IUGR) occurred in five pregnancies. Placenta accreta and IUGR occurred only in those pregnancies which occurred in patients whose post-operative studies remained abnormal. Conclusions: Comprehensive therapy of IUA including proving cure prior to recommending that the patient attempt to conceive and meticulous monitoring during pregnancy and delivery will result in an excellent reproductive outcome.

Disclosure: Charles M. March, MD - This author has relevant financial relationships with the following commercial interests: Spouse employed by Biosense Webster. Richard P. Marrs, MD and Robert Israel, MD, MPH - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Improved Accuracy of Noninvasive Prenatal Detection of Trisomy 21 by Using Parental Genotypes

Allison Ryan, PhD
Natera, Inc., Redwood City, California
Barbara J. Pettersen, MS; Matthew Rabinowitz, PhD

Introduction: Noninvasive detection of fetal trisomy 21 from pregnancy plasma DNA approaches clinical implementation. In published studies chromosome over-representation is determined by comparing shotgun sequencing results to cut-off values established from a large number of controls. We developed a Bayesian maximum likelihood estimation (MLE) algorithm that uses parents’ genotypes and HapMap data to determine a threshold from the amount of fetal DNA that minimizes the false call negative rate, thereby improving accuracy. Methods: Data from normal, trisomy 21 and corresponding mothers’ cell lines were used to simulate pregnancy plasma data, sampling at various fetal fractions. We applied the MLE algorithm and compared its performance to a published method (Chiu et al. BMJ 2011), calling ploidy in 500 simulations per fetal fraction. The simulation results were validated by sequencing four pregnancy plasma samples collected under an IRB-approved protocol. Results: The MLE-based approach achieved 99% accuracy down to 9% child fraction and reported confidences corresponding to the observed accuracy. Real pregnancy samples were all correctly called with confidences of 100%. In contrast, our implementation of a published algorithm achieved only 87.8% accuracy at 9% child DNA and required 18% child DNA to achieve 99% accuracy. Conclusion: An MLE-based approach achieves greater accuracy than a published method, especially at the low fetal fractions expected early in pregnancy that make aneuploidy detection more challenging. The approach produces a confidence metric that indicates the reliability of the result whereas published methods are at risk of reporting false negative results.
when there is insufficient fetal DNA.

Disclosure: Allison Ryan, PhD and Barbara J. Pettersen, MS - These authors have relevant financial relationships with the following commercial interests: Employed by Natera.
Matthew Rabinowitz, PhD - This author has relevant financial relationships with the following commercial interests: CEO of Gene Security Network and owns stock.

[90] Selection Criteria and Outcomes for Gestational Surrogates Compared With In Vitro Fertilization Controls at a Tertiary Care Center
Andrew H. Spencer, MD
University of California San Diego, San Diego, California
Jasmine Lai, MD; Thomas F. Kelly, MD

Objective: To determine whether American Society of Reproductive Medicine (ASRM) recommendations for gestational surrogate selection impacts maternal or neonatal outcomes. Study design: A retrospective cohort of gestational surrogates delivered at a tertiary center from 2000 to 2011 was compared with controls who achieved pregnancy through in vitro fertilization (IVF). Cases were evaluated whether published ASRM recommendations for gestational surrogate selection were met. Outcomes when compared to controls included rates of composite morbidities, gestational age at delivery, premature delivery rate and NICU admissions. Independent t-test, Chi Square and Fisher’s Exact tests were utilized. Results: A total of 39 surrogate pregnancies were identified and compared against 53 IVF controls. 64.2% of cases met ASRM criteria. History of preterm delivery (30% versus 9%; \( P < .01 \)), history of at least one major obstetrical complication (64% versus 26%; \( P < .001 \)), and history of prior cesarean delivery (35% versus 6%; \( P < .001 \)), were higher in the gestational surrogate cohort when compared to the IVF control group. The rates of multiples were increased in the surrogate group (71% versus 51%; \( P < .05 \)). There were no differences between the two groups in frequency of maternal complications, hospital stay, mode of delivery, rate of premature delivery, or NICU admission rate. Conclusion: Greater than one third of gestational surrogates do not meet ASRM recommended criteria. While surrogates were more likely to have a poor obstetrical history compared to IVF controls, they did not have a statistically increased rate of maternal or neonatal morbidities. Surrogates are also more likely to have a multiple gestation.

Disclosure: Andrew H. Spencer, MD; Jasmine Lai, MD and Thomas F. Kelly, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

[91] Targeted Sequencing Approach for Noninvasive Detection of Chromosome Aneuploidy
Bernhard G. Zimmermann, PhD
Natera, Inc., Redwood City, California
Barbara J. Pettersen, MS; Matthew Rabinowitz, PhD
Introduction: The noninvasive detection of trisomy 21 by shotgun sequencing is expected to become commercially available in 2012. However, this brute force counting method applies most sequencing capacity to chromosomes that are actually not at risk for being aneuploid. We have developed a targeted sequencing approach applying a Bayesian Maximum Likelihood Estimation (MLE) algorithm that improves aneuploidy detection by direct evaluation of genotypes from fetal-maternal mixture in conjunction with parent genotypes. Methods: DNA from normal, trisomy 21 and corresponding parents’ cell lines were mixed to simulate pregnancy plasma samples. Also, plasma samples from twenty pregnancies and respective paternal genomic samples were obtained under IRB-approval. Approximately 1.5 million sequence reads were obtained per sample following a target enrichment procedure for specific SNPs and chromosome ploidy was determined for chromosomes 2 and 21. Results: Above 10% child fraction, the algorithm correctly called chromosome ploidy for all samples with confidences greater than 99.7% (median 100%), ten plasma samples including a triploid pregnancy and eleven cell line mixtures including seven trisomy 21 spikes. Conclusion: Targeted sequencing in conjunction with our MLE based algorithm accurately reported the ploidy of both tested chromosomes from 21 samples, down to 10% fetal DNA. The number of sequence reads was 3 to 10 times lower than for published shotgun sequencing studies. The crucial difference of our MLE algorithm is that it leverages parent genotypes to improve accuracy and generate a confidence metric. At low fetal fractions, false ploidy calls can be prevented by determining the call confidence.

Disclosure: Bernhard G. Zimmermann, PhD - This author has relevant financial relationships with the following commercial interests: Employee and holds stock options in Natera.
Barbara J. Pettersen, MS - This author has relevant financial relationships with the following commercial interests: Employed by Natera.
Matthew Rabinowitz, PhD - This author has relevant financial relationships with the following commercial interests: CEO of Gene Security Network and owns stock.

Ultrasound

[92] Single Deepest Vertical Pocket At Midtrimester: Correlation With Traditional 4 Quadrant AFI?
Derek T. Jurus, DO
Pennsylvania State University College of Medicine, Hershey, Pennsylvania
Serdar H. Ural, MD

Objective: Amniotic fluid volume assessment methods lack consensus. We looked for correlation between single deepest vertical pocket (SDVP) and traditional 4 quadrant amniotic fluid index (AFI) values at midtrimester within the same gestation and ultrasound examination, and predictive value of SDVP for oligohydramnios at term. Study design: Our retrospective study included 550 anatomical ultrasound
examinations between 17-22 weeks of gestational age. Oligohydramnios was defined as AFI less than 5 centimeters (cm). Inclusion criteria were singleton gestation. Exclusion criteria included congenital anomalies, pregestational diabetes, and premature rupture of membranes. SDVP was chosen from the previously measured 4 quadrant AFI. Receiver operating curve and logistic regression were performed. Results: Pearson correlation of SDVP to traditional AFI was found to be 0.81 ($P < .001$, 95% confidence interval [CI]). There was no statistical significance found in the ability of SDVP to predict oligohydramnios at term. Odds ratio for every 1 cm increase in SDVP demonstrated the odds of not having oligohydramnios increased by 1.66 fold. Youden’s J Index of 0.571 sensitivity yielded a cut-point SDVP value of 1.38 cm for identification of adequate fluid at term. Analysis showed all quadrants were equally represented as the SDVP. Conclusion: Our unique study determined that SDVP strongly correlates to traditional 4 quadrant AFI, indicating SDVP alone accurately assesses volume. SDVP at midtrimester, however, is not predictive of oligohydramnios at term. No one quadrant was found to more frequently represent the SDVP. Further research of SDVP is needed to evaluate its utility and may lead to less intervention.

Disclosure: Derek T. Jurus, DO - This author has no conflicts of interest to disclose relative to the contents of this presentation. Serdar H. Ural, MD - This author has relevant financial relationships with the following commercial interests: Speakers’ Bureau: Johnson and Johnson; Consultant: Watson.

The Role of Ultrasound in the Evaluation of Pelvic Pain

Frank A. Nwankwo, MD
University of Oklahoma, Tulsa, Oklahoma
Michael O. Gardner, MD, MPH; Nora M. Doyle, MD, MPH

INTRODUCTION: Pelvic pain (PP), accounts for 10-40% of gynecologic visits, and is a main indication (12%) for the annual 600,000 hysterectomies. Ultrasound (US) is the current technique of choice in the investigation of PP. We sought to survey ultrasound findings and clinical conditions associated with the diagnosis of PP.

METHODS: After IRB approval, women with PP seen during January 2008 – January 2011 were identified using EMR/ultrasound database. Women age 15 – 75 with PP/US included. Those with malignancy diagnosis were excluded. Patient demographics and ultrasound criteria were gathered. Uni/multivariate analyses performed. $P < 0.05$ considered significant. Results: During a 3-year study period, 280 met study criteria. Mean age was 36.8. Uterine position: 75% anteverted, 15% retroverted and 10% absent. 75% of adnexa reported normal. 94/280 (33.6%) cases no significant US findings were reported. 186/280 (66.4%) had significant ultrasound findings including ovarian cysts (5.4%), uterine fibroids (13.9%), and polycystic ovaries (10.7%). 86% patients had comorbidities including diabetes, thyroid disease hypertension and depression. 92% reported no sexual abuse. 22 patients had IUD.
Interestingly, 75% of patients presenting for US were already on pain medication. PP did not correlate with uterine position ($P = .06$), adnexal masses ($P = 0.08$), sexual transmitted disease ($P = .2$), nor abuse history ($P = .27$). PP was significantly associated with comorbidities ($P = .05$), and medication use ($P = .04$). Conclusion: Pelvic pain remains a challenge. While US is a respectable screening tool, our study supports confounding variables must be disentangled by the practitioner caring for the PP patient.

Disclosure: Frank Nwankwo, MD; Michael O. Gardner, MD, MPH and Nora M. Doyle, MD, MPH - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Adnexal Masses in Pregnancy: A University Hospital Experience

Amelia L. M. Sutton, MD, PhD
University of Alabama at Birmingham, Birmingham, Alabama
Jenny Whitworth, MD; John M. Straughn Jr., MD

Objective: We sought to characterize the ultrasound findings and outcomes of pregnant women with adnexal masses in a large tertiary care center. Methods. We retrospectively reviewed patients with adnexal masses identified on prenatal sonograms from July, 2004 through March, 2010. Abstracted data included history, ultrasound characteristics, and pathology reports. Results. 193 patients were identified with a prenatal adnexal mass. 35.2% of patients were observed with serial sonograms, 34.7% had spontaneous resolution of their masses, and 8.1% underwent antepartum or intrapartum surgery. Size was the most common indication for surgery (42.9%). In 62.9% of cases, Perinatologists performed the surgery, while Gynecologic Oncologists were the primary surgeons in 14.3% of cases, and 8.6% of cases involved both specialists. 8 patients were diagnosed with ovarian tumors of low malignant potential (LMP), 1 patient was diagnosed with a colorectal malignancy, and 1 had an abdominal wall sarcoma. The 10 women with LMP or a malignancy had significantly larger masses as compared to patients with benign masses (13.0 versus 6.3 cm; $P < .01$), and more patients in this cohort had an enlarging mass (60% versus 17.5%; $P < .01$). Patients with LMP or malignancy were more likely to have sonographically complex or solid masses (70 versus 37.7%; $P = .05$). Conclusions: Few women with adnexal masses during pregnancy will require surgical intervention, and malignancy is rare in this population. Ultrasound characteristics, such as size and mass complexity, provide diagnostic information and may be used to guide management.

Disclosure: Amelia L. M. Sutton, MD, PhD; Jenny Whitworth, MD and John M. Straughn, Jr., MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.

Urogynecology
Stem Cell Trafficking in an Animal Model of Interstitial Cystitis
Kerrie L. Adams, MD
Oregon Health and Science University, Portland, Oregon
Melissa Wong, PhD; William T. Gregory, MD

Objectives: Our study aims to investigate the ability of whole bone marrow (WBM) cells to traffic to a site of injury within the urothelium in the setting of a interstitial cystitis animal model. Methods: A chemical cystitis was induced using a well described protocol of 200 mg/kg intra-peritoneal injection of cyclophosphamide (CYP) in n = 4 C57Bl/6 recipient mice. After 4 hours, WBM isolated from the femur of a donor green fluorescent protein (GFP) mouse was transplanted by retro-orbital injection into recipients. N = 2 mice also received whole body radiation (12Gy) in addition to CYP. Histological studies were conducted at 7 days (n = 2) and 14 days (n = 2). Results: GFP-expressing cells were detected after 7 days in the stroma and urothelium, with more GFP expressing cells noted in the CYP + radiation group. An increase in trafficked cells was noted at 14 days in both the CYP alone and CYP + radiation groups. Conclusions: In this preliminary data, WBM (hematopoietic and mesenchymal stem cells) home to localized site of injury in an animal model of interstitial cystitis. Further studies will be conducted to confirm the type of cells which have homed to the site of injury, the regenerative potential for use of stem cells in an animal model of interstitial cystitis, and clinical significance of stem cells for treatment of interstitial cystitis.

Disclosure: Kerrie L. Adams, MD; Melissa Wong, PhD and William T. Gregory, MD - These authors have no conflicts of interest to disclose relative to the contents of this presentation.