**Supplemental table 1.**

**Journals included in the review**

**Anesthesia Journals**

Anesthesia and Analgesia, Anesthesiology, British Journal of Anesthesia, Canadian Journal of Anesthesia, International Journal of Obstetric Anesthesia

**Obstetrics and Gynecology Journals**

American Journal of Obstetrics and Gynecology, Obstetrics and Gynecology, British Journal of Obstetrics and Gynecology

**Perinatology and Pediatric Journals**

JAMA Pediatrics, Pediatrics

**General Medical Journals**

American Journal of Epidemiology, Annals of Internal Medicine, Blood, British Medical Journal, Canadian Medical Association Journal, Circulation, Epidemiology, Hypertension, JAMA, JAMA Internal Medicine, Journal of Thrombosis and Haemostasis, Lancet, Lancet Global Health, New England Journal of Medicine, Thrombosis and Haemostasis

**Online Supplement: Gerard W. Ostheimer Lecture Syllabus**

***What’s New in Obstetric Anesthesia?* – 2016**

Brian T. Bateman, M.D., M.Sc.

**Article summaries**

1. Adesope OA, Einhorn LM, Olufolabi AJ, Cooter M, Habib AS. The impact of gestational age and fetal weight on the risk of failure of spinal anesthesia for cesarean delivery. *International journal of obstetric anesthesia.* 2016; 26:8-14.

**The authors examined the frequency of failure to achieve an adequate level of surgical anesthesia with ≥10.5 mg of bupivacaine in association with gestational age at the time of cesarean delivery. The rates of block failure were 10.8% for <28 weeks, 7.7% for <28 to <32, 5.3% for 32 to <37 to and 5% for 37weeks or greater. In a multivariable model, low birthweight was also associated with catheter failure.**

1. FDA Drug Safety Communication: FDA review results in new warnings about using general anesthetics and sedation drugs in young children and pregnant women. 2016.

**Citing data from animal studies, the FDA issued a warning about repeated or lengthy use of general anesthesia or sedating drugs in children < 3 and pregnant women in the third trimester owing to the risks of neurotoxicity.** **It states: “Health care professionals should balance the benefits of appropriate anesthesia in young children and pregnant women against the potential risks, especially for procedures that may last longer than 3 hours.”**

1. Aiken CE, Aiken AR, Scott JG, Brockelsby JC. The influence of hours worked prior to delivery on maternal and neonatal outcomes: a retrospective cohort study. *Am J Obstet Gynecol.* 2016; 215(5):634.e631-634.e637.

**This retrospective cohort study followed 24,506 unscheduled deliveries at a single tertiary care center in the UK. The investigators sought to examine the impact of time of day and hours worked prior to delivery on a variety of obstetrical and neonatal outcomes including PPH, low cord pH, failed instrumental vaginal delivery, delayed neonatal respiration, and severe perinatal trauma. There was no significant difference in specified outcomes between deliveries occurring during the day and the night. However, the risk of some of the outcomes (>1.5 L blood loss, low cord pH) was highest late in the shift, suggesting that the risk of adverse outcomes may increase in association with provider fatigue.**

1. Alisic S, Boet S, Sutherland S, Bould M. A qualitative study exploring mentorship in anesthesiology: perspectives from both sides of the relationship. *Canadian Journal of Anaesthesia.* 2016; 63(7):851-861.

**This qualitative study based on semi-structure interviews, examined the mentorship relationship from both the perspective of the mentees (residents) and mentors (faculty) at the University of Ottawa. They identified 3 factors that influenced the success of the mentorship relationship: clear expectations of the mentor/mentees for the relationship, compatibility and shared interests, and structure of the mentorship program.**

1. Angle PJ, Kurtz Landy C, Djordjevic J, et al. Performance of the Angle Labor Pain Questionnaire during Initiation of Epidural Analgesia in Early Active Labor. *Anesthesia and analgesia.* 2016; 123(6):1546-1553.
2. Editorial: Carvalho B, Mhyre JM. Moving Beyond the 0–10 Scale for Labor Pain Measurement. *Anesthesia and Analgesia.* 2016; 123(6):1351.

**This study examined the performance characteristics of the Angle Labor Pain Questionnaire (A-LPQ), which was evaluated in association with the initiation of epidural analgesia. The A-LPQ is a 22 item questionnaire that is designed to measure the five most important dimensions of women’s childbirth pain experiences: the enormity of pain, fear/anxiety, uterine contraction pain, birthing pain, and back pain/long haul. This study, which included 51 patients, showed that A-LPQ was able to detect reductions in women’s experience of pain across multiple dimensions associated with the initiation of epidural anesthesia. This tool promises a way to more fully characterize women’s experience of pain associated with labor in comparison to the 11 point numeric pain scales that are commonly used both in practice and research settings.**

1. Ariyo P, Trelles M, Helmand R, et al. Providing Anesthesia Care in Resource-limited Settings: A 6-year Analysis of Anesthesia Services Provided at Medecins Sans Frontieres Facilities. *Anesthesiology.* 2016; 124(3):561-569.

**This retrospective analysis examined anesthetic procedures performed from 2008 to 2014 at 45 Medecins Sans Frontieres facilities. The article reviews the essential medications and equipment provided at these facilities and evaluates the frequency of and risk factors for perioperative mortality. About half of the cases were in the fields of obstetrics, gynecology, or urology. Spinals were used for 45% of the cases. The observed mortality rate was 0.25%. Overall, the data suggest that a range of surgical procedures can be safely provided by trained providers in settings with limited resources.**

1. Azad MB, Konya T, Persaud RR, et al. Impact of maternal intrapartum antibiotics, method of birth and breastfeeding on gut microbiota during the first year of life: a prospective cohort study. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(6):983-993.
2. Editorial: Hughes BL. Antibiotic prophylaxis in pregnancy-benefit without harm? *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(6):994.

**This study of 198 healthy term infants from the Canadian Healthy Infant Longitudinal Development compared the gut microbiota during the first year of life in infants from pregnancies exposed to antibiotics for either group B streptococcus prophylaxis, pre-labor rupture of membranes, or cesarean delivery. The infant microbiotas were significantly different at 3 months for all types of antibiotic exposure. They differences continued to be present at 12 months for infants exposed to antibiotics in the setting of an emergency cesarean delivery.**

1. Bailey SR, Field N, Townsend CL, Rodger AJ, Brocklehurst P. Antibiotic prophylaxis for women undergoing caesarean section and infant health. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(6):875-876.

**This commentary points out that broad spectrum, prophylactic antibiotics affect the infant microbiome. Abnormal microbiota has been linked to atopic dermatitis, inflammatory bowel disease, and type 1 diabetes. The commentary notes the need for long term studies to generate the high quality evidence needed to weigh the short term benefits of antibiotics in decreasing maternal infection with the possible long term effects on infant health.**

1. Bateman BT, Franklin JM, Bykov K, et al. Persistent opioid use following cesarean delivery: patterns and predictors among opioid-naïve women. *American Journal of Obstetrics and Gynecology.* 2016; 215(3):353.e351-353.e318.

**Opioids are routinely prescribed following cesarean delivery. Opioid exposure for legitimate indications has been shown to be a potential trigger for chronic opioid use. This study used a cohort of 80,000 opioid naive women who received an opioid following cesarean delivery to determine the frequency with which these patients become persistent users in the year following delivery. It found that approximately 1 in 300 women became persistent users and that this behavior tended to occur in women with psychiatric comorbidity, certain pain conditions, and a history of non-opioid substance use/abuse.**

1. Bell J, Towers CV, Hennessy MD, Heitzman C, Smith B, Chattin K. Detoxification from opiate drugs during pregnancy. *American Journal of Obstetrics and Gynecology.* 2016; 215(3):374.e371-376.
2. Editorial: Campbell WA. Opioid detoxification during pregnancy: the door continues to open. *American Journal of Obstetrics and Gynecology.* 2016; 215(3):258-260.

**Current practice recommendations suggest avoiding opioid detoxification during pregnancy because of the concern that the acute stress associated with this may lead to preterm labor, fetal distress or fetal demise. This retrospective study reviewed records of 301 women who underwent detoxification. There were no adverse fetal outcomes associated with detoxification, but rates of relapse and subsequent neonatal abstinence syndrome were very high (31% overall and 70% in women who underwent inpatient detoxification without intense outpatient follow-up).**

1. Berger JS, Gonzalez A, Hopkins A, et al. Dose-response of intrathecal morphine when administered with intravenous ketorolac for post-cesarean analgesia: a two-center, prospective, randomized, blinded trial. *International Journal of Obstetric Anesthesia.* 2016; 28:3-11.

**This two-center, blinded RCT randomized 144 healthy women undergoing cesarean delivery to 50, 100, or 150 micrograms of intrathecal morphine, in addition to routine IV ketorolac. All patients had access to morphine PCAs. The primary endpoint was morphine consumption in the 24 hours after delivery. There was no difference in morphine consumption between the three groups, nor were there differences in the secondary endpoints of VAS pain scores or nausea. Pruritus was more common in the higher dose groups at some time points.**

1. Bernstein J, Hua B, Kahana M, Shaparin N, Yu S, Davila-Velazquez J. Neuraxial Anesthesia in Parturients with Low Platelet Counts. *Anesthesia and Analgesia.* 2016; 123(1):165-167.

**This single center, retrospective cohort study examined the use of neuraxial anesthesia in thrombocytopenic parturients (platelet count <100,000/mm3). Of the 20,244 patients included in the cohort, 1.8% of patients were thrombocytopenic and 69% of these patients received a neuraxial anesthetic. No epidural hematomas were observed. The upper bound of the 95% CI for this analysis suggested the risk of epidural hematoma was 1.2%.**

1. Booth JL, Harris LC, Eisenach JC, Pan AP. A Randomized Controlled Trial Comparing Two Multimodal Analgesic Techniques in Patients Predicted to Have Severe Pain After Cesarean Delivery. *Anesthesia and analgesia.* 2016; 122(4):1114-1119.

**This RCT randomized patients undergoing elective cesarean delivery who were predicted to be above the 80th percentile for evoked pain intensity based on a 3-item preoperative screening questionnaire, to either a higher dose of intrathecal morphine (300 mcg) with scheduled acetaminophen or the usual dose of morphine (100 mcg) plus placebo tablets. In the intervention group, the mean evoked pain scores with movement based on a 100mm VAS was decreased by 15 mm (p=0.009). There were no differences in persistent pain or depression associated with the intervention.**

1. Booth JM, Pan JC, Ross VH, Russell GB, Harris LC, Pan PH. Combined Spinal Epidural Technique for Labor Analgesia Does Not Delay Recognition of Epidural Catheter Failures: A Single-center Retrospective Cohort Survival Analysis. *Anesthesiology.* 2016; 125(3):516-524.

**This retrospective cohort study compared the rate of epidural failure in 1440 women receiving a CSE to 955 women receiving a traditional epidural. In a multivariable model that adjusted for relevant confounders, CSEs had a failure rate that was about one-half the rate of traditional epidurals (HR 0.58, 95% CI 0.43 to 0.79). Failure with CSE was also more likely to be recognized in the first 30 minutes after placement.**

1. Bor P, Ledertoug S, Boie S, Knoblauch NO, Stornes I. Continuation versus discontinuation of oxytocin infusion during the active phase of labour: a randomised controlled trial. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(1):129-135.

**This single center RCT evaluated whether the discontinuation of oxytocin infusion at 5 cm dilation in women who were either induced or augmented with oxytocin was associated with a reduction in maternal and neonatal complications. One hundred women were randomized to each arm. There was a longer duration of the active phase of labor in the discontinuation group versus the continuation group (median 125 minutes versus 85 minutes), but a significantly lower incidence of fetal heart rate abnormalities (20% vs. 51%) and uterine hyperstimulation (2% versus 12%). There was a non-significant reduction in cesarean delivery, tachysystole, postpartum hemorrhage, and pH<7 associated with discontinuation. Additional studies are needed to determine if discontinuation of oxytocin during the active phase of labor may be advantageous for some patients.**

1. Briody VA, Albright CM, Has P, Hughes BL. Use of Cefazolin for Group B Streptococci Prophylaxis in Women Reporting a Penicillin Allergy Without Anaphylaxis. *Obstetrics and gynecology.* 2016; 127(3):577-583.

**This single center retrospective cohort study examined the patterns of antibiotic use in group B streptococci (GBS) colonized women who reported a penicillin allergy. Guidelines recommend that women who report a penicillin allergy without a history of penicillin or cephalosporin induced anaphylaxis, angioedema, respiratory distress, or urticaria should receive cefazolin. In this cohort, only 44% received appropriate antibiotics. If the results from this single center are generalizable nationwide, this suggests a need for improved adherence to this practice guideline.**

1. Brown JD, Doshi PA, Pauly NJ, Talbert JC. Rates of Neonatal Abstinence Syndrome amid Efforts to Combat the Opioid Abuse Epidemic. *JAMA pediatrics.* 2016; 170(11):1110-1112.

**This research letter examined rates of neonatal abstinence syndrome using data from nationwide hospitalizations, as well as hospitalizations in Kentucky. Nationwide rates more than doubled from 2008 to 2015, from 2.8 to 7.3 per 1,000 births. The rates in Kentucky increased more than 4-fold from 2008 to 2014, from 5.0 to 21.2 per 1,000 births. NAS rates have now reached epidemic proportions, with certain areas of the country, like Appalachia, disproportionately affected.**

1. Burtch R, Scott C, Zimmerman L, Patel A. Blood Loss as a Function of Body Surface Area: Redefining Parameters of Obstetric Blood Loss. *Obstetrics and gynecology.* 2016; 128(6):1274-1280.

**This single center observational study examined 459 singleton deliveries over a 7 month period. The authors argue that blood loss in obstetrics should be defined as a function of the percentage of total blood loss, rather than as a single threshold volume for defining hemorrhage. They make the point that blood volume varies as a function of body surface area and show that estimated blood loss increases as body surface area quintile increases.**

1. Butwick AJ, Blumenfeld YJ, Brookfield KF, Nelson LM, Weiniger CF. Racial and Ethnic Disparities in Mode of Anesthesia for Cesarean Delivery. *Anesthesia and analgesia.* 2016; 122(2):472-479.
2. Editorial: Caughey AB. Racial and Ethnic Disparities in General Anesthesia for Cesarean: What Are the Implications? *Anesthesia and analgesia.* 2016; 122(2):297-298.

**Prior studies have established racial/ethnic disparities in the use of neuraxial anesthesia. This study sought to examine whether disparities were also present in the use of general anesthesia for cesarean delivery. Data were drawn from the Maternal-Fetal Medicine Units Network from 1999 to 2002. African Americans had the highest rates of GA. Even after adjusting for confounding factors, African Americans had a 70% higher risk of GA compared with whites. The adjusted risk for Hispanics was 10% higher and for “non-Hispanic others” was 20% higher.**

1. Cecatti JG, Costa ML, Haddad SM, et al. Network for Surveillance of Severe Maternal Morbidity: a powerful national collaboration generating data on maternal health outcomes and care. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(6):946-953.
2. Editorial: Knight M. Severe maternal morbidity-actions are more important than definitions. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(6):954.

**There has been increasing interest in tracking severe maternal morbidity in developed countries. This study extends that focus to hospitals in middle-income countries. In this study, 27 referral hospitals from all regions of Brazil prospectively tracked all cases of severe maternal morbidity using WHO criteria. They found that hypertension was the leading cause of maternal near miss morbidity (45%), followed by hemorrhage (41%).**

1. Champaneria R, Shah L, Wilson MJ, Daniels JP. Clinical effectiveness of transversus abdominis plane (TAP) blocks for pain relief after caesarean section: a meta-analysis. *International journal of obstetric anesthesia.* 2016; 28:45-60.

**This metaanalysis of available RCTs examines the clinical effectiveness of transversus abdominis plane (TAP) blocks for acute post-cesarean pain. Twenty studies were identified for inclusion. When compared to controls, TAP blocks resulted in a significant reduction in pain scores at rest for 6 hours and a non-significant reduction at rest for 24 hours; results were similar for pain with movement. When TAP blocks were compared to intrathecal morphine, TAP blocks provided inferior pain scores at rest and with movement. In studies that examined the intrathecal morphine with and without TAP blocks, the addition of TAP blocks provided a very small but significant reduction in pain measures at 6 hours but not 24 hours.**

1. Clapp MA, Little SE, Zheng J, Robinson JN. A multi-state analysis of postpartum readmissions in the United States. *American Journal of Obstetrics and Gynecology.* 2016; 215(1):113.e111-113.e110 110p.

**This study used statewide administrative data from 3 states from 2004 to 2011 to evaluate patterns of postpartum readmission. The readmission rate increased from 1.7% to 2.2% during the study period. Risk factors for readmission identified included public insurance, black race, hypertensive disorders, and diabetes. Infection, hypertension, and psychiatric indications were the most common reasons for readmission.**

1. Cnattingius S, Villamor E. Weight change between successive pregnancies and risks of stillbirth and infant mortality: a nationwide cohort study. *The Lancet.*387 (10018):558-565.
2. Editorial: McCowan LM, McKinlay CJ, Poston L. Interpregnancy weight gain-a modifiable cause of stillbirth? *Lancet (London, England).* 2015.

**This population-based cohort in Sweden evaluated the association between weight gain between the first and second pregnancy and the risk of stillbirth and neonatal death. The cohort included 456, 711 women. Compared to women who maintained a stable weight between pregnancies, there was a 55% higher risk of stillbirth and a 29% higher risk of neonatal mortality associated with an increase in BMI of four or more units.**

1. Cobb B, Cho Y, Hilton G, Ting V, Carvalho B. Active Warming Utilizing Combined IV Fluid and Forced-Air Warming Decreases Hypothermia and Improves Maternal Comfort During Cesarean Delivery: A Randomized Control Trial. *Anesthesia and analgesia.* 2016; 122(5):1490-1497.

**This single-center, double-blind RCT, randomized 46 healthy women undergoing scheduled cesarean deliveries to either active warming with warmed IV fluid and a lower body forced-air warmer or warming by blankets only. The primary outcome was maternal temperature on arrival in the PACU, which was significantly higher in the active warming group (mean difference 0.4 degrees Celsius, p=0.006). The proportion of patients who were hypothermic on arrival to the PACU was lower in the active warming group (64% vs. 91%, p=0.031). There was a non-significant reduction in shivering (22% vs. 45%, p=0.11).**

1. Cohn J, Moaveni D, Sznol J, Ranasinghe J. Complications of 761 short-term intrathecal macrocatheters in obstetric patients: a retrospective review of cases over a 12-year period. *International journal of obstetric anesthesia.* 2016; 25:30-36.

**This retrospective review, evaluated complications associated with 761 intrathecal catheters placed either intentionally for high risk patients or following advertent intrathecal puncture. There were no cases of meningitis, epidural or spinal abscess, hematoma, arachnoiditis, or cauda equina syndrome. PDPH occurred in 41% of patients.**

1. Cole NM, Carvalho JC, Erik-Soussi M, Ramachandran N, Balki M. In Vitro Comparative Effect of Carbetocin and Oxytocin in Pregnant Human Myometrium with and without Oxytocin Pretreatment. *Anesthesiology.* 2016; 124(2):378-386.

**This was an in vitro study of the contractile effects of carbetocin vs. oxytocin. The investigation was conducted with myometrial samples collected from women undergoing elective cesarean deliveries. The samples were exposed to these drugs with and without pretreatment with oxytocin. Under both conditions, oxytocin produced stronger contractions than carbetocin. Oxytocin pretreatment lessened the strength of the contractions associated with treatment with both agents.**

1. Costantine MM, Cleary K, Hebert MF, et al. Safety and pharmacokinetics of pravastatin used for the prevention of preeclampsia in high-risk pregnant women: a pilot randomized controlled trial. *Am J Obstet Gynecol.* 2016; 214(6):720.e721-720.e717.

**Statins have been demonstrated in animal studies to reverse the endothelial dysfunction associated with preeclampsia. This pilot RCT randomized 20 pregnant women at high risk for preeclampsia between weeks 12 and 16 of pregnancy to either pravastatin or a placebo. Four women in the placebo group and none in the pravastatin group developed preeclampsia. Birth weights did not differ between the two groups. In addition, there were no perinatal deaths in either group. Maternal cholesterol was lower in the statin arm, but umbilical cholesterol concentrations were similar in each group.**

1. Cuypers V, Van de Velde M, Devroe S. Intracranial subdural haematoma following neuraxial anaesthesia in the obstetric population: a literature review with analysis of 56 reported cases. *International journal of obstetric anesthesia.* 2016; 25:58-65.

**This study presents the results of a systematic review of all published intracranial subdural hematomas associated with neuraxial anesthesia in obstetric patients. There were 56 case reported in the literature. Headache that was no longer postural was present in 83% of cases. Focal neurological changes were present in 69% of patients. The mortality rate for reported cases was 7%.**

1. D'Alton ME, Friedman AM, Smiley RM, et al. National Partnership for Maternal Safety: Consensus Bundle on Venous Thromboembolism. *Journal of Midwifery and Women's Health.* 2016(5):649.
2. Editorial: Friedman AM, Smiley RM. Expanding Venous Thromboembolism Prophylaxis for At-Risk Obstetric Patients: Recommendations From the National Partnership Bundle. *Anesthesia and Analgesia.* 2016; 123(4):806-808.
3. Editorial: Leffert L, Landau R. Integrating the New Thromboprophylaxis Guidelines into Obstetric Anesthesia Practice. *Anesthesia and Analgesia.* 2016; 123(4):809-811.

**These guidelines, issued from the National Partnership for Maternal Safety (NPMS), feature a comprehensive bundle of recommendations for the prevention and management of Venous Thromboprophylaxis in the obstetric population. The bundle generally recommends more widespread use of VTE prophylaxis than prior US guidelines. As a consequence of the bundle, far more patients will likely be anticoagulated. This will create challenges for anesthesiologists deciding whether to perform neuraxial anesthetics.**

1. Davidson AJ, Disma N, de Graaff JC, et al. Neurodevelopmental outcome at 2 years of age after general anaesthesia and awake-regional anaesthesia in infancy (GAS): an international multicentre, randomised controlled trial. *Lancet (London, England).* 2016; 387(10015):239-250.
2. Editorial: Warner DO, Flick RP. Anaesthetics, infants, and neurodevelopment: case closed? *Lancet (London, England).* 2016; 387(10015):202-204.

**The General Anaesthesia compared to Spinal anaesthesia (GAS) trial was established to assess whether general anesthesia in infancy impacts neurodevelopmental outcomes. This manuscript is a interim analysis of a trial which randomized 363 infants undergoing inguinal herniorrhaphy at less than 60 weeks postmenstrual age to either awake-regional or general anesthesia. The median duration of anesthesia was 54 minutes. At 2 years of age, cognitive composite scores as assessed by the Bayley Scales of Infant and Toddler development were equivalent in both groups. The primary outcome of the trial is IQ at 5 years which will be reported separately.**

1. Drukker L, Hants Y, Farkash R, et al. Impact of surgeon annual volume on short-term maternal outcome in cesarean delivery. *Am J Obstet Gynecol.* 2016; 215(1):85.e81-88.

**This single center study from a high-volume tertiary care center evaluated the association between the annual number of cesarean deliveries performed/supervised by an obstetrician and a variety of adverse maternal outcomes. High annual volume was defined as being above the median case volume. Low volume obstetricians (compared to high volume obstetricians) had higher rates of urinary/GI tract injury, hemoglobin drop > 3 g/dL, and prolonged maternal hospitalization.**

1. Ducloy-Bouthors AS, Duhamel A, Kipnis E, et al. Postpartum haemorrhage related early increase in D-dimers is inhibited by tranexamic acid: haemostasis parameters of a randomized controlled open labelled trial. *British journal of anaesthesia.* 2016; 116(5):641-648.

**This is a post-hoc secondary analysis of a multicenter RCT that evaluated the efficacy of tranexamic acid (TXA) in women with PPH following vaginal delivery. The analysis for this study included 3 groups: a hemorrhage group treated with TXA (n=72), a hemorrhage group without TXA (n=72), and a non-hemorrhage group (n=23). The study assessed parameters in blood samples collected as part of the trial. It found that the untreated hemorrhage group had higher levels of D-dimers and plasmin-antiplasmin complexes than non-hemorrhage controls, suggesting that PPH is associated with early fibrinolysis. Treatment with 4 grams of TXA blunted these increases.**

1. Duryea EL, Nelson DB, Wyckoff MH, et al. The impact of ambient operating room temperature on neonatal and maternal hypothermia and associated morbidities: a randomized controlled trial. *Am J Obstet Gynecol.* 2016; 214(4):505.e501-507.

**Neonatal hypothermia is associated with a range of adverse infant outcomes including hypoglycemia, metabolic acidosis, intraventricular hemorrhage, and respiratory distress. Maternal hypothermia is also associated with an increased risk for certain postoperative complications. This single center, cluster randomized RCT, adjusted the operating room temperatures weekly to either 67 degrees F or 73 degrees F (the maximum allowed according to hospital regulations). There were approximately 400 deliveries in each arm. Neonatal hypothermia was significantly less common at the higher temperature (35% vs. 50%), as was moderate-to-severe hypothermia (5% vs. 19%). Maternal temperature was also slightly higher on arrival in the PACU. Severe adverse neonatal outcomes were not different between the two groups, but power for these rare outcomes was limited.**

1. Edmunds LD, Ovseiko PV, Shepperd S, et al. Why do women choose or reject careers in academic medicine? A narrative review of empirical evidence. *Lancet (London, England).* 2016.

**This systematic and narrative review of studies published between 1985 and 2015 examining women’s decisions on pursuing careers in academic medicine. The authors identify and reflect on a number of themes present across studies and develop approaches for academic centers to increase the participation of women.**

1. Fitzpatrick KE, Tuffnell D, Kurinczuk JJ, Knight M. Incidence, risk factors, management and outcomes of amniotic-fluid embolism: a population-based cohort and nested case-control study. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(1):100-109.

**This population-based cohort and nested case-control study from the UK Obstetric Surveillance system estimated the incidence of AFE as 1.7 per 100,000 pregnancies. The case fatality rate was 19%. Risk factors identified include age (35 years and older), multiple pregnancies, induction of labor, and placenta previa.**

1. Frieden TR, Houry D. Reducing the Risks of Relief--The CDC Opioid-Prescribing Guideline. *The New England journal of medicine.* 2016; 374(16):1501-1504.

**This editorial accompanied the release of the CDC opioid prescribing guidelines. Deaths from prescription opioid overdose have increased four-fold over the past decade and a half in the US. Similar increases have been observed for the prevalence of opioid use disorders. These increases parallel the rise in the quantity of opioids prescribed by clinicians. The CDC guidelines lay out 12 recommendations to inform the use of these medications including promoting the use of nonpharmacologic and non-opioid medications for the treatment of chronic pain, limiting the quantity and duration of prescriptions for acute indications, and avoiding high opioid doses and co-prescriptions of benzodiazepines. Multiple studies have shown that opioids are commonly prescribed during pregnancy, so these guidelines are likely to impact on the treatment of pain in pregnancy.**

1. Frolova AI, Stout MJ, Tuuli MG, Lopez JD, Macones GA, Cahill AG. Duration of the Third Stage of Labor and Risk of Postpartum Hemorrhage. *Obstetrics and gynecology.* 2016; 127(5):951-956.

**This retrospective observational study of 7,121 women, who underwent vaginal delivery after 37 weeks gestation, examines the association between the duration of the third stage of labor and postpartum hemorrhage. The risk of PPH begins to increase at 20 minutes duration. Compared to pregnancies where the duration of the 3rd stage was 0-4 minutes, durations of 20 to 24 minutes were associated with a 2-fold increase in PPH risk, 25 to 29 minutes a 2.6-fold increase, and >= 30 minutes a 5.8-fold increase in risk. The authors call for a reevaluation of the current definition for prolonged third stage of labor (which is 30 minutes).**

1. Gimovsky AC, Berghella V. Randomized controlled trial of prolonged second stage: extending the time limit vs. usual guidelines. *Am J Obstet Gynecol.* 2016; 214(3):361.e361-366.

**This study randomized 78 women meeting criteria for prolonged second stage of labor (3 hours with an epidural and 2 hours without) to either extended labor for at least one hour or expedited delivery via cesarean or instrumented vaginal delivery. The incidence of cesarean delivery was markedly reduced in the extended labor group (19% vs. 43%). Other measures of maternal and neonatal morbidity were similar between the two groups, but power was limited for these secondary outcomes.**

1. Groden J, Gonzalez-Fiol A, Aaronson J, Sachs A, Smiley R. Catheter failure rates and time course with epidural versus combined spinal-epidural analgesia in labor. *International journal of obstetric anesthesia.* 2016; 26:4-7.

**This retrospective cohort study compared the frequency of catheter failure, defined as the need to replace the catheter, in CSEs and traditional epidurals. Overall, 2.1% of CSE catheters and 3.9% of traditional epidural catheters were replaced during labor (p<0.001). Time to replacement was higher for catheters placed as part of a CSE than those placed as traditional epidurals.**

1. Guglielminotti J, Deneux-Tharaux C, Wong CA, Li G. Hospital-Level Factors Associated with Anesthesia-Related Adverse Events in Cesarean Deliveries, New York State, 2009-2011. *Anesthesia and analgesia.* 2016; 122(6):1947-1956.

**This study used statewide data from New York from 2009 to 2011 to define hospital level factors that are associated with anesthesia-relate adverse events in cesarean deliveries. The strongest predictor of anesthesia-relate adverse events in a multilevel model of risk factors was annual hospital cesarean delivery volume. This accounted for 15% of the between-hospital variation in the rates of these complications.**

1. Gyamfi-Bannerman C, Thom EA, Blackwell SC, et al. Antenatal betamethasone for women at risk for late preterm delivery. *The New England journal of medicine.* 2016(18):1311.
2. Editorial: Crowther CA, Harding JE. Antenatal Glucocorticoids for Late Preterm Birth? *The New England journal of medicine.* 2016; 374(14):1376-1377.

**Infants born late preterm are at heightened risk for respiratory complications compared to those born at term. This trial randomized women with singleton pregnancies at 34 weeks, 0 days gestation to 36 weeks, 5 days gestation at risk for delivery before 37 weeks to either 2 injections of betamethasone or placebo. The primary study endpoint was a composite of treatments for neonatal respiratory complications (CPAP, high flow nasal cannula, etc) within 72 hours after delivery. This outcome occurred in 11.6% of the betamethasone group and 14.4% of the placebo group (p=0.02). There was no significant difference in maternal or neonatal infectious complications.**

1. Hanley GE, Smolina K, Mintzes B, Oberlander TF, Morgan SG. Postpartum Hemorrhage and Use of Serotonin Reuptake Inhibitor Antidepressants in Pregnancy. *Obstetrics and gynecology.* 2016; 127(3):553-561.

**This population-based cohort study of approximately 300 thousand pregnancies examined the association between SSRI and SNRI exposure around the time of delivery and the risk of PPH. This association is biologically plausible as these medications may inhibit serotonin’s role in platelet aggregation and/or compromise myometrial contraction that may be mediated by serotonin. After controlling for confounders, SNRIs were associated with a 76% increase in PPH risk. SSRIs were associated with a 9 to 14% increase in the risk of PPH, but this association did not reach statistical significance in the primary analysis.**

1. Heddle NM, Cook RJ, Arnold DM, et al. Effect of Short-Term vs. Long-Term Blood Storage on Mortality after Transfusion. *The New England journal of medicine.* 2016.
2. Editorial: Tobian AAR, Ness PM. Red Cells - Aging Gracefully in the Blood Bank. *The New England journal of medicine.* 2016.

**Observational studies suggest that long-term storage of blood prior to transfusion may increase the risk of cardiovascular events. This pragmatic RCT at six hospitals randomized 31,497 patients who required red-cell transfusion in a 1 to 2 ratio to either a short-term storage group (mean storage duration 13 days) versus a long-term storage group (mean storage duration 23.6 days). There was no association between short- versus long-term storage and in-hospital mortality (odds ratio, 1.05, 95% CI 0.95 to 1.16).**

1. Hilton G, Daniels K, Goldhaber-Fiebert SN, Lipman S, Carvalho B, Butwick A. Checklists and multidisciplinary team performance during simulated obstetric hemorrhage. *International journal of obstetric anesthesia.* 2016; 25:9-16.

**This prospective observational study evaluated the use of a checklist by 14 teams participating in an obstetric hemorrhage simulation. Teams received training on the use of checklists prior to the drill. 86% of teams used the checklist. Teams rapidly activated the massive transfusion protocol and transfused packed cells. 58% of teams designated a reader and 67% completed the 15-point checklist within 20 minutes of the start of the scenario. As system-based approaches are embraced to address the maternal morbidity and mortality associated with hemorrhage, checklists promise to have an expanded role in practice. While teams generally used the checklist, the study notes areas for improvement in the way in which they are used (e.g., utilizing the entire checklist, designating a reader).**

1. Howell EA, Egorova N, Balbierz A, Zeitlin J, Hebert PL. Black-white differences in severe maternal morbidity and site of care. *Am J Obstet Gynecol.* 2016; 214(1):122 e121-127.

**Using data from the Nationwide Inpatient Sample from 2010 and 2011, this study examined whether “racial differences in the site of delivery contribute to black-white disparities in severe maternal morbidity.” They found that severe maternal morbidity was higher in high black serving hospitals compared to low or medium black serving hospitals. Interestingly, this trend was true for both white and black patients. This suggests that the site of delivery may play an important role in racial disparities in severe maternal morbidity and highlights the need for quality improvement initiatives targeting these hospitals.**

1. Howell EA, Egorova NN, Balbierz A, Zeitlin J, Hebert PL. Site of delivery contribution to black-white severe maternal morbidity disparity. *American Journal of Obstetrics and Gynecology.* 2016; 215(2):143-152.

**This population based study, based on discharge and birth certificate datasets from New York City sought to examine black-white disparities in severe maternal morbidity. Black women were at a higher risk by over 2-fold for severe morbidity after adjusting for patient characteristics and comorbidities. Blacks were far less likely than whites to deliver at low morbidity hospitals. The investigators models suggest that about half of the disparity in severe morbidity is attributable to site of delivery.**

1. Hu LQ, Flood P, Li Y, et al. No Pain Labor and Delivery: A Global Health Initiative's Impact on Clinical Outcomes in China. *Anesthesia and analgesia.* 2016; 122(6):1931-1938.

**The nongovernmental organization “No Pain Labor & Delivery” was established on 2008 by faculty members at Northwestern with the goal of educating Chinese women and health providers about the use of labor analgesia. China has the world’s highest rate of cesarean delivery and this may be due in part to infrequent use of neuraxial analgesia during labor. The organization facilitates the visit of multidisciplinary teams to hospitals in China and provides a weeklong educational program designed with the goal of supplying the knowledge necessary to establish a 24/7 obstetrical anesthesia service. Thirty one hospitals had been engaged at the time of the publication and 24 of these had established 24/7 coverage. Impact studies suggest implementation of these services is associated with higher rates of labor epidural (>50%) and a reduction in cesarean delivery, episiotomy, postpartum hemorrhage, and neonatal morbidity.**

1. Huffmyer JL, Moncrief M, Tashjian JA, et al. Driving Performance of Residents after Six Consecutive Overnight Work Shifts. *Anesthesiology.* 2016; 124(6):1396-1403.

**This study assessed the driving performance of 29 residents at the University of Virginia by a driving simulator after working 6 consecutive overnight shifts. The residents exhibited impaired control in each of the driving variables evaluated. Future work is needed to establish the optimal approach to scheduling residents (and other providers) to ensure the safety of both patients and providers.**

1. Hunt TD, Guglielminotti J, Li G. Costs Associated with Anesthesia-Related Adverse Events during Labor and Delivery in New York State, 2010. *Anesthesia and analgesia.* 2016; 122(6):2007-2016.

**This study attempts to calculate the excess hospital costs associated with anesthesia-related adverse events using statewide inpatient data from New York from 2010. The adjusted excess cost attributable to each of these complications was $1189. The excess cost per admission for adverse anesthesia events was $5.49 which was significantly less than that of preeclampsia and hemorrhage, where the costs were $17.07 and $58.16, respectively.**

1. Jagannathan DK, Arriaga AF, Elterman KG, et al. Effect of neuraxial technique after inadvertent dural puncture on obstetric outcomes and anesthetic complications. *International journal of obstetric anesthesia.* 2016; 25:23-29.

**This retrospective cohort study assessed the complication of an inadvertent dural puncture in 235 patients from attempted epidural placement. 73% had an intrathecal catheter placed and 27% had the epidural catheter re-sited. The two groups did not differ in the proportion of patients who had a prolonged second stage of labor or in the frequency of cesarean delivery. Intrathecal catheters failed at a higher rate (14% vs. 2%, p=0.005).**

1. Johansson MA, Mier-y-Teran-Romero L, Reefhuis J, Gilboa SM, Hills SL. Zika and the Risk of Microcephaly. *The New England journal of medicine.* 2016; 375(1):1-4.

**This Perspectives piece uses epidemiological data from French Polynesia and Bahia, Brazil to demonstrate the likely causal association between first-trimester exposure to Zika virus and microcephaly.**

1. Kainu JP, Halmesmaki E, Korttila KT, Sarvela PJ. Persistent Pain after Cesarean Delivery and Vaginal Delivery: A Prospective Cohort Study. *Anesthesia and analgesia.* 2016; 123(6):1535-1545.

**This survey study examined the frequency of persistent pain in 1052 women who delivered vaginally and 502 women who delivered by cesarean. The prevalence of persistent pain at 1 year was 22% following cesarean versus 8% following vaginal delivery. Measures of pain immediately after delivery predicted pain at 1 year. Complications (e.g., vacuum extractions, episiotomy, etc) were not associated with persistent pain.**

1. Ker K, Shakur H, Roberts I. Does tranexamic acid prevent postpartum haemorrhage? A systematic review of randomised controlled trials. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(11):1745-1752.

**This systematic review of RCTs examined the use of tranexamic acid to prevent PPH. The authors identified 26 trials that included a total of 4191 women. Most studies were single-center, small, and of poor quality. Many of the trials had serious irregularities including duplicated text from other studies and/or lack of ethics committee approval. The authors concluded that there is no reliable evidence to support the use of TXA to prevent PPH and that further trials are needed.**

1. Kilpatrick SJ, Abreo A, Greene N, et al. Severe maternal morbidity in a large cohort of women with acute severe intrapartum hypertension. *American Journal of Obstetrics and Gynecology.* 2016; 215(1):91.e91-97.

**The CDC has developed a definition for defining severe maternal morbidity using administrative data. The aim of this study was to validate this definition by evaluating potential cases of severe morbidity identified using the CDC algorithm by chart review. The investigators found that the CDC definition has a sensitivity of 77% and a PPV of 44%. Most false positives were women who received less than 4 units of pRBCs. The authors concluded that the CDC ICD-9 based definition is a valid measure of severe maternal morbidity.**

1. Kozhimannil KB, Casey MM, Hung P, Prasad S, Moscovice IS. Location of childbirth for rural women: implications for maternal levels of care. *Am J Obstet Gynecol.* 2016; 214(5):661.e661-661.e610.

**ACOG and SMFM have promoted designating levels of maternity care in order to facilitate triaging of women with high-risk conditions to centers with appropriate expertise and resources. There is concern about the challenges of implementing this in rural areas. This study uses statewide data from 9 states to describe where rural women deliver. Overall, 75% of rural women deliver at local hospitals. As expected, those with preterm delivery or complications were more likely to deliver at non-local hospitals. However, even after controlling for these conditions, rural Medicaid beneficiaries were less likely to deliver at non-local hospitals, suggesting that strategies will need to be defined to engage this population.**

1. Krans EE, Patrick SW. Opioid Use Disorder in Pregnancy: Health Policy and Practice in the Midst of an Epidemic. *Obstetrics and Gynecology.* 2016; 128(1):4-10.

**This paper reviews health policy issues at the intersection of the opioid epidemic and pregnancy. The authors note the need for expanded access to medication assisted treatment for pregnant women with opioid use disorders.**

1. Little SE, Orav EJ, Robinson JN, Caughey AB, Jha AK. The relationship between variations in cesarean delivery and regional health care use in the United States. *Am J Obstet Gynecol.* 2016; 214(6):735.e731-738.

**This study examined the association between cesarean delivery rates and measures of healthcare utilization across the United States by pooling multiple national databases including birth-certificate data from the CDC and Medicare data. Cesarean delivery rates varied markedly across communities—from 4 to 65%. These rates correlated with Medicare spending and measures of resource utilization at the end of life. Approximately 30% of the variation in cesarean rates was explained by differences in healthcare use intensity.**

1. Liu X, Lynch CD, Cheng WW, Landon MB. Lowering the high rate of caesarean delivery in China: an experience from Shanghai. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(10):1620-1628.
2. Editorial: Geirsson RT. From half to a third: a step towards reducing unnecessary caesarean sections. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(10):1628.

**In the WHO global survey in 2010, the cesarean delivery rate in China was the highest in the world—46%. In response, the Chinese government put forward initiatives to promote vaginal delivery. This study examined the impact of lowering the CD rate at the largest obstetrical hospital in Shanghai, the International Peace Maternity and Child Healthcare Hospital. The CD rate decreased from 51.5% in 2008 to 36.1%, which was largely attributable to a reduction in elective CD. The frequencies of measures of neonatal morbidity and mortality were unchanged despite this reduction.**

1. Lund S, Boas IM, Bedesa T, Fekede W, Nielsen HS, Sorensen BL. Association between the Safe Delivery App and Quality of Care and Perinatal Survival in Ethiopia: A Randomized Clinical Trial. *JAMA pediatrics.* 2016; 170(8):765-771.

**The investigators developed a “safe delivery app” to train providers to manage obstetrical and neonatal emergencies. This cluster-randomized clinical trial randomized 73 Ethiopian healthcare facilities in 5 rural districts to either mobile phone-based training or routine care. The intervention was associated with a non-significant reduction on perinatal mortality (14 vs. 23 deaths per 1,000). It was associated with a significant increase in skills and knowledge of providers.**

1. MacDorman MF, Declercq E, Cabral H, Morton C. Recent Increases in the U.S. Maternal Mortality Rate: Disentangling Trends from Measurement Issues. *Obstetrics and gynecology.* 2016; 128(3):447-455.

**In 2003, states began to implement a check box on death certificates to ascertain if the decedent was pregnant or postpartum at the time of death. However, in many states, there was a delay in the adoption of this checkbox, resulting in challenges in estimating the maternal mortality rate in the US. This study developed a methodology to perform analyses of trends in maternal mortality by taking into account state revision dates and different question formats. The estimates suggest that the maternal mortality rate (per 100,000 live births) increased 27% from 2000 to 2014, from 18.8 to 23.8.**

1. Magro-Malosso ER, Saccone G, Di Tommaso M, Mele M, Berghella V. Neuraxial analgesia to increase the success rate of external cephalic version: a systematic review and meta-analysis of randomized controlled trials. *American Journal of Obstetrics and Gynecology.* 2016; 215(3):276-286.

**This systematic review and metaanalysis of RCTs examined the impact of neuraxial analgesia on success rates for external cephalic version (ECV). The aggregated results from these trials show that the use of neuraxial analgesia resulted in a higher rate of successful ECV (58% vs. 43%) and vaginal delivery (54% vs. 45%). There were also significant reductions in maternal discomfort and pain. The rates of emergency cesarean delivery, nonreassuring fetal testing, and abruption did not differ between the 2 groups.**

1. Main EK, Abreo A, McNulty J, et al. Measuring severe maternal morbidity: validation of potential measures. *Am J Obstet Gynecol.* 2016; 214(5):643.e641-643.e610.

**This study validated the Centers for Disease Control and Prevention International Classification of Diseases, 9th revision criteria for defining severe maternal morbidity using data from 16 California hospitals. The performance characteristics of the criteria, when compared to a gold standard of severe maternal morbidity were acceptable; the sensitivity of the criteria was 0.77 and a positive predictive value was 0.44, with a C-statistic of 0.87. The most common source of misclassification was transfusion of 1 to 2 units of packed red blood cells.**

1. Malin GL, Bugg GJ, Thornton J, et al. Does oral carbohydrate supplementation improve labour outcome? A systematic review and individual patient data meta-analysis. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(4):510-517.
2. Editorial: Sutton C, Butwick AJ. Can extra carbs improve perinatal outcomes? *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(4):518.

**This is a metaanalysis of RCTs examining the impact of oral carbohydrate supplementation on labor outcomes versus placebo or standard of care. Data from 4 trials were included. There was no difference associated with carbohydrate supplementation for any of the obstetrical outcomes assessed including cesarean delivery instrumented vaginal delivery, or Apgar score <7.**

1. Mankowitz SKW, Gonzalez Fiol A, Smiley R. Failure to Extend Epidural Labor Analgesia for Cesarean Delivery Anesthesia: A Focused Review. *Anesthesia and Analgesia.* 2016.
2. Editorial: Bauer ME, Mhyre JM. Active Management of Labor Epidural Analgesia Is the Key to Successful Conversion of Epidural Analgesia to Cesarean Delivery Anesthesia. *Anesthesia and Analgesia.* 2016.

**This excellent review discusses the risk factors for epidural failure to convert for cesarean delivery anesthesia. The article and accompanying editorial emphasize the need for the active management of epidural catheters and early recognition and replacement of poorly functioning catheters. The article also makes recommendations for approaches to undertake when the catheter fails.**

1. Martin AS, Monsour M, Kissin DM, Jamieson DJ, Callaghan WM, Boulet SL. Trends in Severe Maternal Morbidity After Assisted Reproductive Technology in the United States, 2008-2012. *Obstetrics and gynecology.* 2016; 127(1):59-66.

**This retrospective cohort study used data from a large commercial insurer to examine the impact of ART on measures of severe maternal morbidity. It found that singleton ART pregnancies were at an increased risk of severe maternal morbidity compared to that of singleton non-ART pregnancies, but found no significant difference in this measure between ART and non-ART multiple gestation pregnancies.**

1. McKenzie CP, Cobb B, Riley ET, Carvalho B. Programmed intermittent epidural boluses for maintenance of labor analgesia: an impact study. *International journal of obstetric anesthesia.* 2016; 26:32-38.

**This single center, retrospective study evaluated the impact of a change from continuous epidural infusion (CEI) + PCEA to programmed intermittent epidural bolus (PIEB) + PCEA. The epidural mix used at the study institution was 0.0625% bupivacaine + sufentanil 0.4 mcg/mL. The CEI rate as 12 mL/hr with PCEA set at 12 mL bolus, lockout 15 minutes. The PIEB setting was a 9 mL every 45 minutes with a PCEA setting of 10 mL bolus with a 10 minute lockout period. Epidurals placed in the 2 months prior to the change (n=333) were compared with those placed in the 2 months after implementation (n=276). The proportion of women requiring clinician rescue bolus decreased from 19% to 12% (p=0.01). There was also a significant reduction in the highest VPS after epidural and before delivery (median 2, IQR 0 to 5 to median 0, IQR 0 to 4, p=0.03) and the proportion with a documented unilateral block (5.4% to 1.8%, p=0.02).**

1. McKinnon B, Yang S, Kramer MS, Bushnik T, Sheppard AJ, Kaufman JS. Comparison of black-white disparities in preterm birth between Canada and the United States. *CMAJ: Canadian Medical Association journal = journal de l'Association medicale canadienne.* 2016; 188(1):E19-26.

**Black women in the US have a higher risk of preterm birth compared with white women. The authors hypothesized that the black-white disparity in preterm birth might be smaller in Canada because racial and socioeconomic disparities in access to care are smaller in Canada. The investigators found that this was not the case—the adjusted relative risks for preterm birth associated with black race were similar in Canada and in the US.**

1. Meara JG, Leather AJ, Hagander L, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *International journal of obstetric anesthesia.* 2016; 25:75-78.

**This executive summary of a report from the Lancet Commission on Global Surgery highlights the large economic and human burden of untreated surgical conditions in low-income and middle-income countries. It calls for a focus on developing systems-based approaches to meeting this unmet need and for the monitoring of indicators of access to safe and affordable surgical and anesthesia care.**

1. Moaddab A, Dildy GA, Brown HL, et al. Health Care Disparity and State-Specific Pregnancy-Related Mortality in the United States, 2005-2014. *Obstetrics and Gynecology.* 2016; 128(4):869-875.

**There are significant interstate differences in maternal mortality in the United States. This study sought to examine factors associated with maternal mortality and define how these correlated with states’ maternal mortality ratio. The investigators used data from the CDC Wonder database which contains data based on death certificates from 2005 to 2014. There was a correlation between states proportion of deliveries to non-Hispanic Black women and its maternal mortality. Other state-specific characteristics and maternal mortality included unintended pregnancy, 4 or fewer prenatal visits, cesarean delivery, and unmarried mothers. The authors conclude that racial disparities and social factors are important drivers in the observed interstate variation in maternal mortality.**

1. Mogos MF, Salemi JL, Spooner KK, McFarlin BL, Salihu HM. Differences in Mortality Between Pregnant and Nonpregnant Women After Cardiopulmonary Resuscitation. *Obstetrics and gynecology.* 2016; 128(4):880-888.

**Using Nationwide Inpatient Sample from 2002 to 2011, this analysis compared the mortality rate in pregnant and non-pregnant women receiving inpatient CPR. In-hospital mortality was 71% for pregnant patients and 49% for non-pregnant patients. This difference persisted after adjusting for measured confounders (adjusted odds ratio 0.46, 95% CI 0.39 to 0.56).**

1. Mor O, Stavsky M, Yitshak-Sade M, et al. Early onset preeclampsia and cerebral palsy: a double hit model? *Am J Obstet Gynecol.* 2016; 214(1):105 e101-109.

**This was a cohort study of 229,192 singleton pregnancies delivered at a single center, which sought to evaluate the association between preeclampsia and cerebral palsy. Preeclampsia doubled the risk of cerebral palsy. Early onset preeclampsia increased this risk approximately 8-fold. Among pregnancies complicated by preeclampsia, additional risk factors including SGA birth asphyxia, and infection further augmented this risk.**

1. Morris JM, Roberts CL, Bowen JR, et al. Immediate delivery compared with expectant management after preterm pre-labour rupture of the membranes close to term (PPROMT trial): a randomised controlled trial. *Lancet (London, England).* 2015.

**PPROM managed expectantly is associated with an increased risk for neonatal infection, but immediate delivery may result in the sequalae associated with prematurity. This multicenter RCT randomized1839 women with PPROM from 34 weeks and 0 days and 36 weeks 6 days gestation without signs of infection to either immediate delivery or expectant management. There was no difference in the rate of neonatal sepsis, the primary outcome, which occurred in 2% of the immediate birth and 3% of the expectant management groups. A composite measure of neonatal morbidity and mortality was also similar in the two groups. The immediate delivery group had significantly higher risk of respiratory distress, mechanical ventilation, and longer time spent in the NICU. The immediate delivery had lower risk for maternal hemorrhage, fever and postpartum antibiotics, and shorter hospital stays, but higher risk for cesarean delivery.**

1. Nair M, Knight M, Kurinczuk JJ. Risk factors and newborn outcomes associated with maternal deaths in the UK from 2009 to 2013: a national case-control study. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(10):1654-1662.
2. Editorial: Drife J. Risk factors for maternal death revisited. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(10):1663.

**This case control analysis examined risk factors for maternal death in the UK from either direct or indirect causes. There were 383 women who died and 1516 controls included in the analysis. Seven factors predicted maternal death: pre-existing medical comorbidities, anemia during pregnancy, previous pregnancy problems, inadequate prenatal care, substance misuse and unemployment. Adverse neonatal outcomes (stillbirth, NICU admission) were also increased in women who subsequently died.**

1. Ngaka TC, Coetzee JF, Dyer RA. The Influence of Body Mass Index on Sensorimotor Block and Vasopressor Requirement during Spinal Anesthesia for Elective Cesarean Delivery. *Anesthesia and analgesia.* 2016; 123(6):1527-1534.

**This prospective observational study of 50 parturients (25 obese and 25 non-obese) undergoing elective cesarean delivery compared the effect of obesity on vasopressor requirement and block height associated with spinal anesthesia. Patients in both groups received 10 mg of intrathecal hyperbaric bupivicaine. Block height did not differ as measured by touch at 5 or 25 minutes. As measured by temperature sensation, the median block height was 2 dermatomes in the obese patients at 25 minutes. Vasopressor requirements were equivalent, as was hand grip strength and peak flow rate. The median time to recovery of touch sensation at T10 was 20 minutes longer in the obese group.**

1. Oberg AS, D'Onofrio BM, Rickert ME, et al. Association of Labor Induction With Offspring Risk of Autism Spectrum Disorders. *JAMA pediatrics.* 2016; 170(9):e160965-e160965.

**Prior observational studies had suggested a potential association between the induction of labor and autism in the offspring. This study used a sibling design (comparing siblings discordant for induction status) to show that the association of induction of labor and autism is unlikely to be causal.**

1. Oladapo OT, Adetoro OO, Ekele BA, et al. When getting there is not enough: a nationwide cross-sectional study of 998 maternal deaths and 1451 near-misses in public tertiary hospitals in a low-income country. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(6):928-938.
2. Editorial: Kongnyuy EJ. We can eliminate maternal deaths in resource-poor countries. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(6):939.

**This nationwide cross-sectional study of 42 tertiary care hospitals in Nigeria, including 91 thousand live births sought to prospectively define the incidence of maternal near-miss and maternal death. The rate of near miss was 1.6% and the rate of maternal death was 1.1%. Over 90% of these cases were admitted in critical condition. Preeclampsia/eclampsia and postpartum hemorrhage were the leading causes of these outcomes. Late presentation for care, lack of insurance, and non-availability of blood products were the most commonly identified problems associated with deficiencies in care. Delay in diagnosis, delay in treatment, and poor monitoring were also common preventable deficiencies in care.**

1. Ozimek JA, Eddins RM, Greene N, et al. Opportunities for improvement in care among women with severe maternal morbidity. *American Journal of Obstetrics and Gynecology.* 2016; 215(4):509.e501-506.

**This study described the implementation of a standardized review process for severe maternal morbidity at Cedar-Sinai Medical Center over a 1.5 year period. EMRs were screened for potential cases by the CDC ICD 9 based definition, prolonged length of stay, ICU admission, transfusion of four or greater units of pRBCs or hospital readmission within 30 days. 2% of their approximately 16,000 deliveries screened positive. After detailed review, true severe morbidity was found to complicate 0.9% of deliveries. Of these, there was the potential for improved care in 44% of cases.**

1. Palmerola KL, D'Alton ME, Brock CO, Friedman AM. A comparison of recommendations for pharmacologic thromboembolism prophylaxis after caesarean delivery from three major guidelines. *BJOG: An International Journal of Obstetrics and Gynaecology.* 2016(13):2157.

**This cross-sectional study at a tertiary referral hospital (Columbia) highlights the significant difference in ACOG, RCOG, and ACCP guidelines for venous thromboprophylaxis after cesarean delivery. For 293 post-cesarean patients included in the study, venous thromboprophylaxis would be recommended for 85% of patients under the RCOG guidelines, 1.0% under the ACOG guidelines and 34.8% under the ACCP guidelines. Additional research is needed to define best clinical practice.**

1. Pourrat O, Dorey M, Ragot S, et al. High-Dose Methylprednisolone to Prevent Platelet Decline in Preeclampsia: A Randomized Controlled Trial. *Obstetrics and Gynecology.* 2016; 128(1):153-158.

**This RCT examined the impact of high-dose methylprednisolone to prevent a decline in platelets in women presenting with preeclampsia and platelet counts from 50 X 109/L to 150 X 109/L. The primary outcome was the proportion of women with platelet counts of <100 X109/L 36 hours after the first administration of medication. The study included 36 patients who received methylprednisolone and 34 who received placebo. The groups did not differ in the proportion of patients who were thrombocytopenic at 36 hours (83% vs. 85%), nor did they differ in the proportion of patients who received neuraxial anesthesia.**

1. Prin M, Guglielminotti J, Moitra V, Li G. Prophylactic Ondansetron for the Prevention of Intrathecal Fentanyl- or Sufentanil-Mediated Pruritus: A Meta-Analysis of Randomized Trials. *Anesthesia and analgesia.* 2016; 122(2):402-409.

**This metaanalysis aggregated the results of RCTs examining the effect of prophylactic administration of ondansetron to prevent pruritus associated with intrathecal fentanyl or sufentanil-mediated pruritus. Six trails including a total of 555 patients were identified. Ondansetron did not result in a significant reduction in the occurrence of pruritus (RR 0.90, 95% CI 0.72 to 1.13), but there was a significant reduction in the administration of rescue medication.**

1. Purwosunu Y, Sarkoen W, Arulkumaran S, Segnitz J. Control of Postpartum Hemorrhage Using Vacuum-Induced Uterine Tamponade. *Obstetrics and Gynecology.* 2016; 128(1):33-36.

**This prospective, proof-of-concept investigation tested a device that creates vacuum-induced uterine tamponade in 10 women with PPH refractory to first-line therapies. The device is inserted into the uterus and is inflated at the level of the external cervical os. Negative pressure is then created through a vacuum causing the uterine cavity to collapse and self tamponade. In all 10 cases, uterine tone was quickly established and the hemorrhage controlled.**

1. Quibel T, Ghout I, Goffinet F, et al. Active Management of the Third Stage of Labor with a Combination of Oxytocin and Misoprostol to Prevent Postpartum Hemorrhage: A Randomized Controlled Trial. *Obstetrics and gynecology.* 2016; 128(4):805-811.

**This multicenter, double-blind RCT enrolled women in the first stage of labor with expected vaginal deliveries at term. All participants received IV oxytocin and were randomized to either 400 mcg of misoprostol or placebo administered orally immediately after delivery. The study’s primary outcome was defined as a PPH greater than 500 cc of blood loss in the 2 hours following delivery. The study was designed to have 80% power to detect a 33% decrease in the occurrence of PPH with a two-tailed p-value of 0.05%; this would require 1550 patients per arm. An interim analysis was conducted that included 1721 patients, at which point the trial was stopped due to a significantly higher risk of adverse effects in the misoprostol groups without difference in the primary outcome. PPH rate was 8.4% in the misoprostol group an 8.3% in the placebo group. Fever was the most common adverse effect and it occurred in 30.4% of the misoprostol group and 6.3% of the placebo group.**

1. Rasmussen SA, Jamieson DJ, Honein MA, Petersen LR. Zika Virus and Birth Defects--Reviewing the Evidence for Causality. *The New England journal of medicine.* 2016; 374(20):1981-1987.

**This special report from authors at the CDC reviews the evidence for a causal relationship between Zika exposure and birth defects using the Shepard Criteria for proof of teratogenicity and the Bradford Hill criteria. It shows that on the basis of these criteria, there is sufficient evidence to “infer a causal association.”**

1. Reddy UM. Screening, Prevention, and Treatment of Opioid Use Disorder During Pregnancy: Expectant Mothers Are Depending on You! *Obstetrics and Gynecology.* 2016; 128(1):1-3 3p.

**This health policy review examined legislative and other systems-based initiatives aimed at addressing the opioid abuse epidemic in pregnancy. It emphasized the need to conceptualize addiction as a chronic disease and to have policies in place to facilitate medication-assisted treatment. It also noted the importance of avoiding policies that penalize pregnant women for disclosing substance use issues to providers.**

1. Richards JL, Kramer MS, Deb-Rinker P, et al. Temporal Trends in Late Preterm and Early Term Birth Rates in 6 High-Income Countries in North America and Europe and Association With Clinician-Initiated Obstetric Interventions. *JAMA: Journal of the American Medical Association.* 2016; 316(4):410-419.
2. Editorial: Spong CY. Improving Birth Outcomes Key to Improving Global Health. *JAMA.* 2016; 316(4):395-396.

**There have been initiatives aimed at curbing elective late-preterm and early-term birth. This study evaluated temporal trends across 6 countries—the US, Canada, Denmark, Finland, Norway and Sweden—from 2006 to the latest available year of data (ranging from 2010 to 2015, depending on the country). Late preterm birth rates decreased for the US and Norway. Early term birth rates decreased for the US, Norway, and Sweden. In the US, the decrease in early term deliveries was associated with a decrease in obstetric interventions.**

1. Saccone G, Berghella V. Antenatal corticosteroids for maturity of term or near term fetuses: systematic review and meta-analysis of randomized controlled trials. *BMJ (Clinical Research Ed).* 2016; 355:i5044-i5044.

**The administration of antenatal corticosteroids for fetal lung maturation is a standard of care for women at risk of delivery within 7 days between 24 and 33 weeks gestation. The use in term or near term pregnancies is controversial. This systematic review and metaanalysis of RCTs evaluated the effectiveness of antenatal corticosteroids given at ≥34 weeks’ gestation. Six trials involving 5698 singleton pregnancies were included in the analysis. Trials examining those with imminent late preterm delivery and planned cesarean delivery at greater than 37 weeks showed a reduction in multiple measures of neonatal respiratory morbidity.**

1. Shekhar S, Gupta N, Kirubakaran R, Pareek P. Oral nifedipine versus intravenous labetalol for severe hypertension during pregnancy: a systematic review and meta-analysis. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(1):40-47.

**This metaanalysis aggregated RCTs comparing oral nifedipine with IV labetalol for the treatment of severe hypertension during pregnancy. Seven trials involving 363 patients were identified. Oral nifedipine resulted in a lower risk of persistent hypertension (RR 0.42, 95% CI 0.18 to 0.96), but the quality of the evidence informing this estimate was judged to be low.**

1. Shields LE, Wiesner S, Klein C, Pelletreau B, Hedriana HL. Use of Maternal Early Warning Trigger tool reduces maternal morbidity. *Am J Obstet Gynecol.* 2016; 214(4):527.e521-526.

**This study examined the implementation of a maternal early warning trigger tool tied to clinical management pathways at 6 hospitals and assessed the incidence of CDC-defined severe maternal morbidity in the 24 months prior to and 18 months after the intervention. 23 hospitals within the same system did not implement the system and served as controls. Significant reductions in composite morbidity measures were associated with the implementation of the tool. Individual measures of morbidity generally trended downward. These measures were either stable or increased in the control hospitals.**

1. Sliwa K, Anthony J. Late maternal deaths: a neglected responsibility. *The Lancet.*387 (10033):2072-2073.

**Most countries only track maternal deaths out to 42 days postpartum. This commentary drew attention to the high burden of late maternal deaths due to pregnancy-related conditions like peripartum cardiomyopathy, pregnancy-induced worsening of chronic diseases, and psychiatric diseases. Authors offered suggestions for improving the tracking of these deaths and argued for a need to increase awareness of this issue and thereby improve care in this vulnerable period**.

1. Sobhy S, Zamora J, Dharmarajah K, et al. Anaesthesia-related maternal mortality in low-income and middle-income countries: a systematic review and meta-analysis. *The Lancet Global health.* 2016; 4(5):e320-327.
2. Editorial: Mhyre JM. The critical role of obstetric anaesthesia in low-income and middle-income countries. *The Lancet Global health.* 2016; 4(5):e290-291.

**This metaanalysis and systematic review evaluated anesthesia-related maternal deaths in countries that are classified as low-income and middle-income by the WHO. The authors identified 44 studies for inclusion in the analysis. The pooled estimate for deaths attributable to anesthesia was 1.2 per 1,000 women undergoing obstetrical procedures. Anesthesia related complications accounted for 2.8% of all maternal deaths and, remarkably, 13.8% of deaths after cesarean delivery. General anesthesia increased the risk of maternal death 3-fold compared to neuraxial anesthesia. Maternal death was more than twice as common when the anesthetic management was performed by non-physician anesthetists.**

1. Souza JP, Betran AP, Dumont A, et al. A global reference for caesarean section rates (C-Model): a multicountry cross-sectional study. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(3):427-436.
2. Editorial: Robson M. A global reference for CS at health facilities? Yes, but there is work to do. *BJOG: an international journal of obstetrics and gynaecology.* 2016; 123(3):437.

**While there is general consensus that a cesarean delivery around 15% is a reasonable benchmark, robust approaches to generate customized benchmarks that account for differences in maternal and obstetrical characteristics are lacking. In this study, the authors derive and validate a tool, “the C-model” that provides risk-adjusted benchmarks for cesarean rates that can be used by facilities and health systems.**

1. Sultan AA, West J, Grainge MJ, et al. Development and validation of risk prediction model for venous thromboembolism in postpartum women: multinational cohort study. *BMJ (Clinical research Ed).* 2016; 355:i6253.

**The investigators develop a prediction model to identify women at high risk for postpartum VTE using data from the England based Clinical Practice Research Datalink. Emergency cesarean delivery, stillbirth, varicose veins, preeclampsia/eclampsia, postpartum infection, and comorbidities were the strongest risk factors identified. The model was then externally validated using data from a Swedish medical birth registry. The c-statistic for the model was 0.70 and excellent calibration. The sensitivity of the model was better than that of existing English and Swedish guidelines.**

1. Sultan P, Halpern SH, Pushpanathan E, Patel S, Carvalho B. The Effect of Intrathecal Morphine Dose on Outcomes after Elective Cesarean Delivery: A Meta-Analysis. *Anesthesia and Analgesia.* 2016; 123(1):154-164.

**This metaanalysis of RCTs compared the effects of high dose (>100 mcg) and low dose (50 to 100 mcg) intrathecal morphine in patients undergoing elective cesarean deliveries. . 11 articles that included a total of 480 patients were included in the study. High dose morphine was associated with a longer time to first analgesic request (mean difference 4.5 hours, p=0.0008), but also with a significantly higher incidence of nausea/vomiting and pruritus.**

1. Sun EC, Darnall BD, Baker LC, Mackey S. Incidence of and Risk Factors for Chronic Opioid Use Among Opioid-Naive Patients in the Postoperative Period. *JAMA Internal Medicine.* 2016; 176(9):1286-1293.

**This study evaluated the question of whether opioid-naive patients are at increased risk for chronic opioid use following surgery. The study included approximately 650 thousand patients who were followed for a year after surgery. For most surgeries, there was an increase in the risk of chronic opioid use compared to control patients. About 200,000 patients in the cohort underwent cesarean delivery. These patients were at a 28% higher risk of chronic opioid use compared to controls after adjusting for relevant confounders.**

1. Sun LS, Li G, Miller TLK, et al. Association Between a Single General Anesthesia Exposure Before Age 36 Months and Neurocognitive Outcomes in Later Childhood. *JAMA.* 2016; 315(21):2312-2320.

**This sibling-matched cohort study, conducted at 4 university-based US tertiary care hospitals, evaluated the effect of general anesthesia exposure in 105 sibling pairs in which one of the siblings underwent inguinal hernia surgery prior to 36 months of age. The sibling pairs were then subjected to detailed neuropsychological testing at a mean age of 10 years old. There were no significant differences in any of the cognitive domains assessed.**

1. Sung Soo K, Yeyi Z, Grantz KL, et al. Obstetric and Neonatal Risks Among Obese Women Without Chronic Disease. *Obstetrics and Gynecology.* 2016; 128(1):104-112 109p.

**This study assessed the association between pre-pregnancy BMI and a range of adverse pregnancy outcomes in a large cohort (N=112,309) of singleton deliveries in women without pre-existing chronic disease. Obese women were at markedly increased risk for many of the complications assessed. The novel insight that this study provides is that obese women are at heightened risk of adverse pregnancy outcomes even in the absence of pre-existing disease.**

1. Tita ATN, Szychowski JM, Boggess K, et al. Adjunctive Azithromycin Prophylaxis for Cesarean Delivery. *New England Journal of Medicine.* 2016; 375(13):1231-1241.
2. Editorial: Weinstein RA, Boyer KM. Antibiotic Prophylaxis for Cesarean Delivery - When Broader Is Better. *The New England journal of medicine.* 2016; 375(13):1284-1286.

**This study evaluated the addition of azithromycin to standard antibiotic prophylaxis prior to skin infection. The rationale for the addition of this agent was coverage of ureaplasma species, which are commonly associated with infection after cesarean delivery. This 14-center RCT randomized 2013 women presenting with singleton pregnancy at 24 weeks gestation or greater and were undergoing cesarean delivery during labor or after membrane rupture to either 500 mg of intravenous azithromycin or a placebo. There was a significant reduction in endometritis (3.8% vs. 6.1%), wound infection (2.4% vs. 6.6%), and serious maternal adverse events (1.5% vs. 2.9%).**

**The accompanying editorial pointed to several important considerations for interpreting this study. Most notably, 73% of the trial subjects had BMIs greater than 30, raising the possibility that cefazolin may have been under dosed.**

1. Toledo P, Eosakul ST, Grobman WA, Feinglass J, Hasnain-Wynia R. Primary Spoken Language and Neuraxial Labor Analgesia Use Among Hispanic Medicaid Recipients. *Anesthesia and analgesia.* 2016; 122(1):204-209.

**Several studies have demonstrated that Hispanic women are less likely to use neuraxial anesthesia than non-Hispanic Caucasians. The impact of primary language on this disparity had not been previously examined. This retrospective cross sectional study included 932 Hispanic Medicaid recipients. After adjusting for confounders, Spanish speaking women were 30% less likely to plan for neuraxial anesthesia and 20% less likely to receive neuraxial anesthesia.**

1. Traynor AJ, Aragon M, Ghosh D, et al. Obstetric Anesthesia Workforce Survey: A 30-Year Update. *Anesthesia and analgesia.* 2016; 122(6):1939-1946.

**This fourth update of the Obstetrical Anesthesia Workforce Survey was performed in 2012 (the first was performed in 1981). Hospitals were sampled based on the number of births per year (>=1500, 500 to 1499, <500) and census region and were sent electronic questionnaires by e-mail. There were a number of notable changes since 2001; in-house availability of neuraxial anesthesia increased from 80% to 86% for hospitals in the top delivery volume stratum, 20% to 41% in the second stratum, and 3% to 15% in the bottom stratum. There was a marked growth in the use of PCEA (86% in the top two strata and 75% in the bottom strata). There was also substantial increase in the independent CRNA practice in the smallest hospitals, increasing from 34% in 2001 to 68% in 2012.**

1. Tuuli MG, Liu J, Stout MJ, et al. A Randomized Trial Comparing Skin Antiseptic Agents at Cesarean Delivery. *The New England journal of medicine.* 2016; 374(7):647-655.

**This single center RCT compared chlorhexidine-alcohol versus iodine-alcohol for the prevention of surgical site infection after cesarean delivery and randomized 1147 patients to each arm. 4.0% in the chlorhexidine-alcohol group developed surgical site infections compared with 7.3% in the iodine-alcohol group (p=0.02). There was a trend towards lower rates of infection for both superficial and deep infections.**

1. van Vliet EO, Nijman TA, Schuit E, et al. Nifedipine versus atosiban for threatened preterm birth (APOSTEL III): a multicentre, randomised controlled trial. *Lancet (London, England).* 2016.

**Tocolytics are frequently administered in women presenting with preterm labor for 48 hours in order to administer corticosteroids. This RCT enrolled women presenting with threatened preterm birth between 25 and 34 weeks and randomized patients to either oral nifedipine or intravenous atosiban, an oxytocin inhibitor. The primary outcome was a composite of adverse perinatal outcomes (e.g., mortality, sepsis, brochopulmonary dysplasia, IVH, etc). Approximately 250 women were randomized to each arm. The primary outcome occurred in 14% of the nifedipine and 15% of the atosiban group.**

1. Vetter C, Devore EE, Wegrzyn LR, et al. Association Between Rotating Night Shift Work and Risk of Coronary Heart Disease Among Women. *Jama.* 2016; 315(16):1726-1734.

**This analysis of the large, prospectively collected Nurses’ Health Studies, examined the impact of night shift work on the risk of coronary heart disease. There was a small, but significant increase in the risk of heart disease associated with night shift work. The risk was highest among nurses who had the greatest number of years spent doing night shift work. This is possibly explained by disruption of biological and social rhythms associated with performing night work.**

1. Volkow ND. Opioids in pregnancy. *BMJ (Clinical research Ed).* 2016; 352:i19.

**This editorial by the Director of the National Institute on Drug Abuse brought attention to the issue of the high prevalence of opioid exposure during pregnancy from both licit and illicit sources. It noted that there has been a marked increase in the number of infants affected by neonatal abstinence syndrome over the past 15 years. It also made the point that there is limited information on the effects of opioid exposure on the developing fetus, but that data from both animal and epidemiological studies raise concerns for potentially increased risk for certain congenital malformations and impaired mother/infant bonding.**

1. Walker KF, Bugg GJ, Macpherson M, et al. Randomized Trial of Labor Induction in Women 35 Years of Age or Older. *The New England journal of medicine.* 2016; 374(9):813-822.

**Rates of stillbirth are elevated in parturients of advanced maternal age. While induction of labor near term may reduce the risk of stillbirth, there is concern that induction may increase the risk of cesarean delivery. In this trial, 619 women who were 35 years or older were randomized to either induction during the 36th week of pregnancy or expectant management. There was no increase in the risk of cesarean delivery (32% vs. 33%). The study was not powered to examine the risk of stillbirth.**

1. Global, regional, and national levels of maternal mortality, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet (London, England).* 2016; 388(10053):1775-1812.

**This systematic analysis for the Global Burden of Disease Study examined trends in maternal mortality for 195 countries and territories. From 1990 to 2015, the was a 29% reduction in the frequency of maternal mortality. At the most recent estimate (2015) there were 275,288 maternal annually. Direct obstetric causes account for 86% of maternal death, with hemorrhage and hypertensive disorders each accounting for about a quarter of maternal death.**

1. Global, regional, national, and selected subnational levels of stillbirths, neonatal, infant, and under-5 mortality, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet (London, England).* 2016; 388(10053):1725-1774.

**This systematic analysis for the Global Burden of Disease Study examined trends in stillbirth, neonatal, infant, and under 5 mortality for 195 countries and territories using sophisticated sampling methods. The authors found that in 2015, there were 5.8 million deaths in children under 5, which was a 52% decrease since 1990. During the same interval, neonatal deaths decreased by 42% and stillbirths by 47%. The decline in under-5 deaths was largely attributable to a decline in communicable diseases. Countries in sub-Saharan Africa continue to have high rates of under-5 mortality.**

**Acknowledgements:**

My heartfelt thanks to Stephanie Hopp and Eloise Dubois for their outstanding administrative support of this work.