METHODS: This is a retrospective cohort study analyzing mode of delivery in infants with initial neonatal HC measuring >35 cm from all deliveries at a single institution between July 2014 and December 2015. Of particular interest was whether cesarean was scheduled or labor was attempted. Secondary analysis involved analyzing those deliveries with prenatal ultrasound suggesting either fetal ventriculomegaly or hydrocephalus with a suspected HC >90th percentile for gestational age. A receiver operator curve (ROC) was then constructed to assess optimal head circumference by which to predict mode of delivery.
RESULTS: Our study included 527 cases with neonatal HC measuring >35 cm, including 252 cesareans and 275 vaginal deliveries. Of the cesarean deliveries, 136 were planned. 16 cases were identified with third trimester ultrasounds measuring HC >90th percentile for gestational age, 11 (68.75%) of which had ventriculomegaly. Of these, 9/16 (56.25%) were scheduled for cesarean without labor. The remaining 7/16 underwent trial of labor: 5/7 (71.43%) delivered via spontaneous vaginal delivery and 2/7 (28.57%) delivered via unanticipated cesarean due to failure to progress. 8 cases of neonatal HC ≥40cm were identified; 7/8 (87.5%) received scheduled cesareans. Additional statistics are included in Table 1 below. ROC analysis demonstrated poor prediction of successful trial of labor at any specific HC between 36 and 40cm (Image 1).
CONCLUSION: These data suggest that a trial of labor should be offered to patients with known ventriculomegaly or an enlarged fetal HC measuring <40cm. Further research is needed to investigate patient profiles for predicting vaginal delivery when HC is >40cm, although vaginal delivery may still be considered in these cases.
Image 1: ROC analysis of successful trials of labor at various HC measurements.
Table 1: Characteristics of TOL participants with neonatal HC>35 cm.
**Figure(s) will be available online.*

S-036

Use of Uterine Electromyography to Evaluate Labor in Term Nulliparous Women. Pin Li*,[2] Le Le Wang†,[2] Huiping Hu†,[2] Robert E Garfield*,[2] Huishu Liu*.[1,2] *[1]Guangzhou Medical University, Guangdong, Guangzhou, China; [2]Guangzhou Women & Children Medical Center, Guangzhou, China.*
INTRODUCTION: The purpose of this study was to define the changes in uterine electrical signals recorded by electromyography (EMG) in relationship to progress in cervical dilation during the 1st stage of labor.
METHODS: Uterine EMG was recorded from the abdominal surface for 30 min. from one hundred and ninety five (total n=195) nulliparous women presenting at $\geq 37^{0/7}$ weeks of gestation. Eight groups were defined: Group 1 (n=10), non-laboring patients with no cervical effacement; Group 2 (n=15), patients with cervical effacement; Groups 3 to7, patients in 1st stage of labor with cervical dilation respectively at 1-2 cm (n=10), 2-3 cm (n=50), 3-5 cm (n=40), 5-7 cm (n=30) and 7-9 cm (n=25), and Group 8 (n=15) during 2nd stage of labor with cervix at 10 cm dilation (n=15). Uterine EMG bursts were characterized by analysis of various burst characteristics, including number of bursts, route mean squared, total power and power density spectrum of peak frequency.
RESULTS: The burst frequency increases progressively from no effacement to 2-3 cm of cervical dilation (P<0.05) and then more steeply thereafter to a peak levels at about 3 to 5 cm (P<0.05), then levels off thereafter (P>0.05). The RMS values increase gradually throughout effacement with significantly higher levels at 10 cm cervical dilation (R=0.771, P<0.025). Similarly, burst power increases gradually and significantly (R=0.890, P<0.001) throughout the process of cervical dilation. Additionally, the PDS peak frequency increases progressively throughout cervical dilation (R=0.972, P<0.001). The relationship between the various components of bursts of uterine electrical activity, such as the power and power density peak frequency are demonstrated respectively in Figures.
CONCLUSION: Uterine EMG can effectively quantify the contribution of uterine muscle electrical activity to the advancement of cervical dilation and the progress of labor during the evolution of labor. This study indicates that the dilation of the cervix is related to uterine EMG and contractions which suggests significant improvements in the diagnoses and the management of labor.
**Figure(s) will be available online.*

S-037

Effects of the Oral Prostaglandin F2 Alpha Receptor Antagonist Tocolytic OBE022 on Reproduction in Rats and Rabbits. Oliver Pohl*,[1] Roberta Sisti*,[2] Jean-Pierre Gotteland*.[1] *[1]ObsEva, SA, Geneva, Switzerland; [2]Research Toxicology Centre, Pomezia, Italy.*
INTRODUCTION: OBE022 is a novel, orally-active prostaglandin F2 alpha receptor antagonist under development for the treatment of preterm labor. The reproductive safety of OBE022 was evaluated in customized fetal development (FD) and pre/postnatal development (PPN) studies mimicking clinical exposure scenarios. The study investigated effects on pregnancy and fetal development in rats and rabbits. In addition, it provided information on pre- and post-natal development to sexual maturity in the rat and detected adverse effects on the pregnant female and on development of the conceptus and offspring.
METHODS: Oral OBE022 was administered at doses of 120, 360 and 1200 mg/kg/d to female rats throughout FD during a FD/PPN study. In the rabbit, OBE022 was dosed intravenously at 3, 6 and 9 mg/kg/d throughout the second half of pregnancy to assess fetal safety. Pharmacokinetic exposure assessments were performed on the last day of pregnancy.
RESULTS: No OBE022 effects were observed during the rat FD study. The rat PPN study did not result in adverse OBE022 effects in female rats allowed to litter, their offspring, and second-generation fetuses. At the highest dose, transient maternal toxicity (weight loss and reduced food intake) resulted in slightly reduced pup weights at birth which recovered within the first two weeks postpartum. The treatment of pregnant female rabbits with OBE022 during late stage gestation did not induce any signs of fetal toxicity. Dose levels of 6 and 9mg/kg/day were associated with maternal toxicity in the form of dose-dependent mortality and no effects on the fetuses. A dose level of 3mg/kg/day was not associated with any adverse effects.
CONCLUSION: OBE022 at up to 360 mg/kg/d had no adverse effects on FD and postnatal development of rats and none of the tested doses had any effect on rabbit fetuses. Exposures at No-Adverse-Effect doses were in excess of maximal clinical exposures. These results constitute an important step toward the development of OBE022 in preterm labor.
**Figure(s) will be available online.*

S-038

Safety and Pharmacokinetics of the Oral Prostaglandin F2α Receptor Antagonist Tocolytic OBE022: A First-in-Human Study in Healthy Women. Oliver Pohl*,[1] Ulrike Lorch*,[2] Line Marchand*,[1] Jean-Pierre Gotteland*.[1] *[1]ObsEva, SA, Geneva, Switzerland; [2]Richmond Pharmacology, London, United Kingdom.*
INTRODUCTION: OBE022 is a novel, orally-active prostaglandin F2α (PGF2α) receptor antagonist under development for preterm labor and has previously been shown to delay delivery in animal models of preterm labor and to reduce the duration and strength of oxytocin and PGF2α-induced contractions in human myometrial strips. To enable future evaluation of OBE022 in preterm labor patients, we performed a Phase 1 single and multiple ascending dose study assessing the safety and pharmacokinetics (PK) of OBE022.
METHODS: This was a prospective, randomized, placebo-controlled, dose-escalating first-in-human Phase I study in 1 clinical site in the UK. A total of 36 healthy postmenopausal women were enrolled and treated orally with placebo or single doses (SAD) of 10, 30, 100, 300, 1000 or 1300 mg, or multiple doses (MAD) of 100, 300 or 1000mg/d during 7 days. In addition the food-effect was evaluated.
RESULTS: OBE022 was observed to be readily absorbed and converted into the active stable metabolite OBE002. Exposure to OBE002 increased with dose of OBE022 and reached anticipated clinically meaningful exposure levels within 1 hour after administration. In the MAD part, mean OBE002 half-lives were observed to be between 8-11 hours after a single dose and 22-29 hours after multiple doses. There was no clinically

relevant food effect, peak exposures were reduced by 20% and AUCs remained bioequivalent. Single and multiple administrations of OBE022 were well tolerated at all doses. There were no serious adverse events and no clinically relevant changes in safety parameters.
CONCLUSION: OBE022 at single and multiple doses up to 1300mg and 1000mg/d, respectively, is safe and has favorable pharmacokinetic characteristics allowing for once or twice daily dosing and no clinically relevant food effect. Our results suggest that OBE022 fulfills all pharmacokinetic and safety prerequisites for further clinical testing in preterm labor patients.
**Figure(s) will be available online.*

S-039

Prediction of the Optimal Time for Late Preterm Antenatal Steroid Administration. Elizabeth A Thom, *George Washington University, Rockville, MD, United States.*
INTRODUCTION: Antenatal corticosteroids (ACS) should be administered so that delivery occurs at least 24 hours and ≤ 7 days after the first dose, which is difficult to predict. Our objective was to identify predictive factors associated with delivery in this optimal interval in women at risk for late preterm birth.
METHODS: Secondary analysis of a multicenter RCT of ACS vs. placebo for women at 34-36 weeks at high risk for preterm birth. Baseline demographic and obstetric variables were evaluated in women with 1) pPROM and 2) preterm labor with intact membranes (PTL) defined as ≥ 6 regular contractions in 1 hour and cervix ≥3cm dilated or ≥75% effaced. For this analysis, the primary outcome is delivery from 24hrs to 7 days after randomization and a secondary outcome is 2 doses received. For each group and outcome, logistic regression adjusted for treatment group was performed for each baseline variable. A minimum set of variables were chosen by backwards elimination. Logistic regressions including these variables and treatment group were tested with the remaining variables and the best performing models chosen based on the score statistic. All analyses were adjusted by treatment. 10-fold cross validation was used to validate the models. Models with area under the curve (AUC)>0.7 were considered acceptable.
RESULTS: Of 792 women in the PTL group, 2 were lost to follow-up, 182 (23%) delivered 24h-7days, 260(33%) before 24h and 348(44%)>7 days. The best prediction model included BMI, gestational age, nulliparity and breech; AUC was 0.64. For 2 doses vs 1, the best prediction model included hypertension/preeclampsia, cervical dilation and effacement; AUC=0.71. Of 620 women in the pPROM group, 155 (25%) delivered 24h-7days; 463 delivered before 24h and 2 > 7days. The best prediction model included cervical dilation, number of contractions per hour at presentation, and effacement; AUC= 0.68. For 2 doses vs 1, the best prediction model included ctx/hr and effacement; AUC=0.65.
CONCLUSION: The only model with acceptable predictive value was for 2 doses versus 1 among women with PTL and intact membranes. Higher cervical dilation and effacement and the presence of preeclampsia or hypertension are strongly negatively associated with a full course.
**Figure(s) will be available online.*

S-040

Evaluation of Kielland Forceps on Fetal Malrotation. Jun Takeda*, Shintaro Makino*, Yasuko Sano†, Chihiro Hirai*, Atsuo Itakura*, Satoru Takeda*. *Juntendo University Faculty of Medicine, Tokyo, Japan.*
INTRODUCTION: Malrotation of the fetal head is the most common indication for second-stage caesarean section. Kielland forceps (KF) are used for rotational assisted vaginal delivery, but remain controversial having undergone a significant reduction of caesarean section without increasing the complications. As the number of transverse arrest increases with the painless delivery, we have been using KF after simulation training of KF. To evaluate the feasibility of introducing KF in obstetrical practice, we retrospectively analyzed medical records in a single teaching hospital.
METHODS: Parturient attempted KF at term with singleton cephalic position were obtained from February to September of 2016. As a control group, cases of occiput transverse position delivered using Naegele forceps (NF) from 2014 to 2015 were identified. The outcomes analyzed as operational features, and maternal and neonatal morbidity. Statistical analysis was performed by chi square and Student t test. Statistical significance was defined when $p<0.05$.
RESULTS: Fifteen women were eligible during the study period, and no differences were found in maternal characteristics. All the cases attempted KF resulted in successful vaginal delivery. The types of the forceps did not show influence on bleeding, counts of extraction, Apgar scores, and umbilical cord pH. Forceps marks on eyes and central of the faces were significantly higher in NF groups ($p<0.05$). No case of severe perineal lacerations was recognized in KF group.
CONCLUSION: Newly introduction of KF for transverse position with careful consideration may be associated with high successful delivery rate without increasing the morbidity.

S-041

Maternal and Neonatal Outcomes in Prolonged Inductions of Labor. Masaru Negi†, Chrstina Ackerman†, Audrey Merriam, Jessica Greenberg†, Sarah Meller†, Sophie Chung†, Anna Sfakianaki*. *Yale University, New Haven, CT, United States.*
INTRODUCTION: While induction of labor is a common obstetrical practice, there is a paucity of data published on safety of longer lengths of induction. Allowing longer duration of inductions of labor could reduce the incidence of cesarean delivery. This study aims to evaluate the safety of prolonged inductions of labor.
METHODS: Women for whom an induction of labor was requested at Yale-New Haven Hospital from February 1, 2013 to August 1, 2014 were identified. Information was obtained from the Yale-New Haven Hospital Labor and Birth Record and Epic Hyperspace. Demographic data included age, race, insurance type, BMI, maternal parity, history of cesarean delivery, and maternal morbidities. Primary outcome was mode of delivery. Secondary outcomes were composite maternal (shoulder dystocia, blood transfusion, ICU transfer, antibiotic administration, or death) and neonatal (APGAR < 4 at 5 minutes, neonatal injury, NICU stay > 24 hours, antibiotic administration, or death) morbidity measures. Unadjusted and adjusted logistic regression analyses were run to determine the association between the above outcomes and length of induction of labor.
RESULTS: 1002 patient records were reviewed, and 826 patients were included. The length of inductions ranged from 0.68 to 66.08 hours (median 10.37). Overall cesarean rate was 24.2%. There was a significant association with increasing length of induction and delivery by cesarean (OR 1.04, CI 1.03-1.06). However, this association was decreased when adjusted for race, indication for induction, maternal parity, history of cesarean delivery, Bishop score, and obesity (OR 1.02, CI 1.00-1.04). Composite maternal morbidity was significantly associated with length of induction after adjusting for the same variables (OR 1.04, CI 1.01-1.06). Composite neonatal morbidity was also significantly associated with length of induction also (OR 1.04, CI 1.02-1.06) but lost significance with adjusting for the above variables (OR 1.02, CI 1.00-1.05).
CONCLUSION: Longer inductions are associated with cesarean delivery, maternal morbidity, and neonatal morbidity. However, the associations are small and may allow for continuation of a longer induction based on a patient's individual clinical status. Further investigation is necessary to determine a safe duration of inductions of labor.