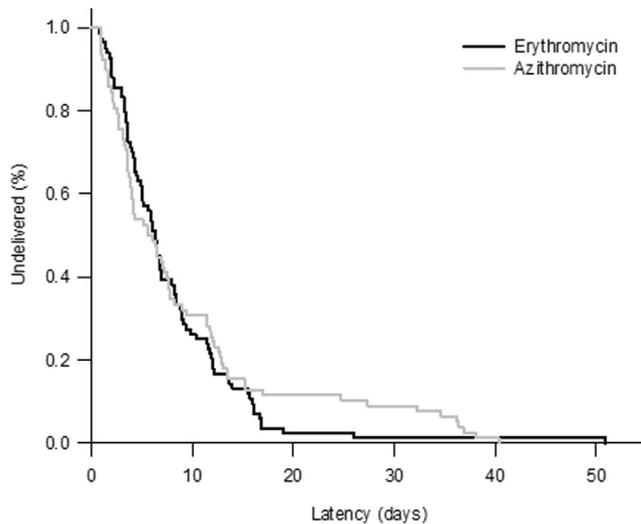


RESULTS: 162 women met inclusion criteria, 78 in the azithromycin group and 84 in the erythromycin group. There was no difference in the median latency from PPRM to delivery between groups (azithromycin: 5.86 days, IQR 3.12-12.05 vs. erythromycin: 6.37, IQR 3.59-10.93; $p=0.67$). There was a higher rate of cesarean section (48.8% vs. 29.5%; $p=0.01$) and positive neonatal blood cultures (13.6% vs. 4.1%; $p=0.04$) in the erythromycin group, but overall rates of neonatal sepsis were low in this cohort. There were no significant differences in the other secondary outcomes studied.

CONCLUSION: There is no difference in latency to delivery when a single oral dose of azithromycin 1g is substituted for erythromycin in the standard antibiotic regimen used in singleton pregnancies complicated by PPRM between 23 and 33 6/7 weeks gestation. The ease of administration and cost-effectiveness of azithromycin make it a favorable option when compared to erythromycin and further prospective study to validate these results is warranted.



384 37: a mobile preterm birth calculator

Marco Altini¹, Julien Penders¹, Eric Dy¹, Deirdre Lyell²

¹Bloom Technologies, San Francisco, CA, ²Stanford University, Stanford, CA

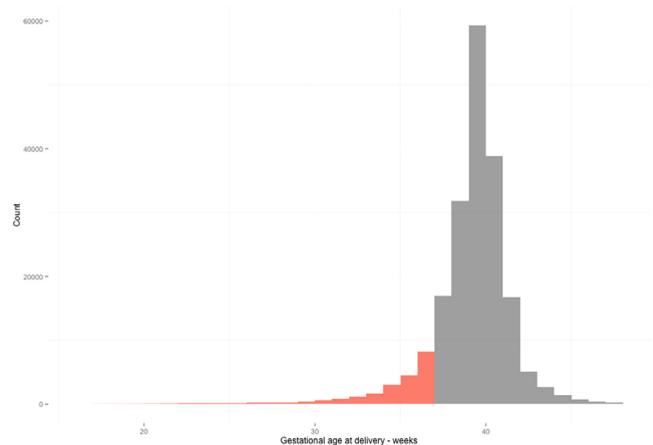
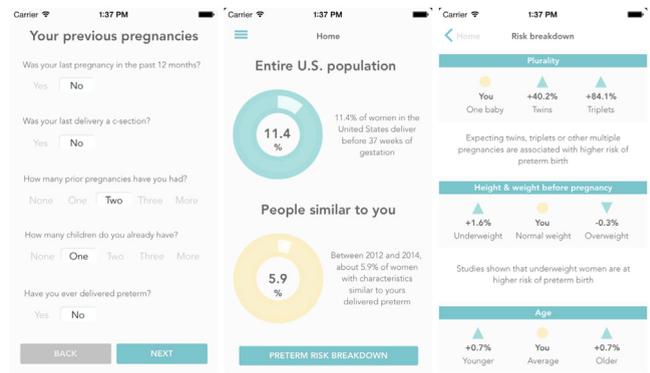
OBJECTIVE: We sought to create and validate a mobile preterm birth calculator, which estimates a woman's relative risk for preterm birth (PTB).

STUDY DESIGN: Using data on four million pregnancies, of which 11% resulted in PTB, published by the National Center for Health Statistics and collected in 2013, we applied Bayesian models for generalized linear regression to estimate the risk of delivery before 37 weeks based on maternal characteristics. The characteristics included in the model included maternal demographics, behaviors and obstetric history (level of education, ethnicity, age, BMI, height, smoking status, payment source, plurality, prior terminations, prior live births, interval since last pregnancy, previous preterm delivery, previous C-section, pre-pregnancy complications), and pregnancy characteristics (weight gain, prenatal care, complications). We used 60% of the data (2.4 million delivery outcomes) to build the calculator using published PTB risk estimates for the above characteristics, and we tested the calculator using the remaining 40% (1.4 million delivery outcomes).

RESULTS: We found that our model estimates a woman's relative risk of PTB with a sensitivity of 0.27, specificity of 0.98, PPV of 0.54 and

NPV of 0.93. **Conclusions:** Our calculator demonstrated relatively high specificity and NPV, and significantly lower sensitivity and PPV in predicting full-term birth. This calculator may be useful to physicians in risk stratification, and could be used as the basis for risk quantification in future prospective research.

CONCLUSION: Our calculator demonstrated relatively high specificity and NPV, and significantly lower sensitivity and PPV in predicting full-term birth. This calculator may be useful to physicians in risk stratification, and could be used as the basis for risk quantification in future prospective research.



385 D-lactic Acid and Matrix Metalloproteinase-2 (MMP-2) levels in vaginal secretions predict cervical length in mid-trimester pregnant women

Antonio Fernandes Moron¹, Julie Leizer², Evelyn Minis², Alan Hatanaka¹, Marcelo Santucci¹, Stephanno Sarmiento¹, Rosiane Mattar¹, Ann Marie Bongiovanni², Ester Sabino³, Marilza Vieira Rudge⁴, Aluisio Segurado³, Iara M Linares³, Steven S Witkin²

¹Federal University of Sao Paulo- UNIFESP, Sao Paulo, Brazil, ²Weill Cornell Medicine, New York, NY, ³University of Sao Paulo Medical School-USP, Sao Paulo, Brazil, ⁴Univ Estadual Paulista-UNESP, Sao Paulo, Brazil

OBJECTIVE: Short cervical length is one of the best predictors of preterm birth. We evaluated whether compounds in vaginal fluid from mid-trimester pregnant women correlated with cervical length.

STUDY DESIGN: In this ongoing study vaginal secretions were obtained before ultrasound evaluation and the soluble fraction assayed by colorimetric assay for D- and L-lactic acid and ELISA for MMP-2,

human epididymal protein-4, kallikrein-5, cathepsin B and extracellular matrix metalloproteinase inducer. Cervical length was evaluated by transvaginal ultrasound using two techniques: measuring the linear straight distance between the internal and external os, and adding the sum of two linear contiguous segments tracing from the internal to the external os. Three measurements were taken for each woman and the shortest cervical length was used. Associations between cervical length and vaginal compounds were analyzed by Spearman rank correlation.

RESULTS: Thirty five women at 18-24 weeks gestation were evaluated so far. Cervical length was negatively associated with the MMP-2 level ($p=0.0157$) and positively correlated with the D-lactic acid level ($p=0.0146$). There was a strong negative association between D-lactic acid and MMP-2 levels ($p=0.0057$). There was no relationship between gestational age at sample collection and D-lactic acid or MMP-2 levels or between cervical length and maternal age, gravidity, parity, history of abortions and sludge in the amniotic cavity.

CONCLUSION: Elevations in MMP-2 that are associated with cervical shortening in the mid-trimester are prevented when high levels of D-lactic acid are present. D-lactic acid is produced in the vagina by *L. crispatus*, *L. jensenii* and *L. gasseri*, suggesting that the abundance of these bacteria may help prevent decreased cervical length by reducing MMP-2 production.

386 Cost-effectiveness of antenatal late preterm steroids with and without tocolysis



Vanessa R. Lee¹, Anjali J. Kaimal², Aaron B. Caughey¹

¹Oregon Health & Science University, Portland, OR, ²Massachusetts General Hospital, Boston, MA

OBJECTIVE: Corticosteroids have been shown to reduce the risk of respiratory morbidity in pregnancies at risk of late preterm birth. However, recent data supporting this strategy did not examine whether tocolysis impacted outcomes. The purpose of this study was to determine whether adding tocolysis to a course of antenatal late preterm steroids in women at risk of late preterm delivery is an optimal or cost-effective strategy compared to steroids alone.

STUDY DESIGN: We created a decision-analytic model using TreeAge software to compare antenatal late preterm steroids with and without tocolysis in a theoretic cohort of 10,000 women at risk for delivery at 34, 35, and 36 weeks' gestation. All probabilities and costs of care were derived from the literature. Outcomes included severe respiratory morbidity (a composite of respiratory distress syndrome, transient tachypnea of the newborn, and apnea), neonatal death, total costs, and quality-adjusted life years (QALYs). A willingness-to-pay value of \$100,000 per QALY was the threshold for cost-effectiveness in our model.

RESULTS: In our theoretic cohort, the addition of tocolysis to a course of antenatal betamethasone would prevent 274 cases of respiratory morbidity if given at 34 weeks, 190 cases at 35 weeks, and 86 cases at 36 weeks. Furthermore, strategies involving tocolysis resulted in fewer neonatal deaths, thereby optimizing QALYs at each gestational age. Regardless of the gestational age at which steroids were initiated, adding tocolysis was a more expensive strategy. However, compared to steroids alone, steroids plus tocolysis was incrementally cost-effective at \$1854/QALY at 34 weeks, \$4670/QALY at 35 weeks, and \$14,362/QALY at 36 weeks.

CONCLUSION: This decision-analytic model suggests that while adding tocolysis to corticosteroids is more costly, it would reduce neonatal morbidity and mortality and thus be a cost-effective intervention

compared to steroids alone. Additional clinical trials investigating the addition of tocolysis in the setting of late preterm steroid administration are warranted in order to more fully inform management of these pregnancies.

Outcomes in a Theoretic Cohort of 10,000 Women At Risk for Late Preterm Delivery						
	Present at 34 Weeks		Present at 35 Weeks		Present at 36 Weeks	
	Steroids Alone	Steroids With Tocolysis	Steroids Alone	Steroids With Tocolysis	Steroids Alone	Steroids With Tocolysis
Severe Respiratory Morbidity	938	664	531	341	246	160
Neonatal Death	31	24	20	16	15	13
Cost (\$ Millions)	106.85	120.26	68.78	92.23	44.81	77.86
QALYs	238903	246130	249667	254687	257192	259449
Incremental Cost-Effectiveness Ratio (\$/QALY)	-	\$1854.00	-	\$4670.00	-	\$14,362.00

387 Cost-effectiveness of post-cesarean pharmacologic VTE prophylaxis in obese women



Vanessa R. Lee¹, Gina L. Westhoff², Rachel A. Pilliod¹, Keenan E. Yanit¹, Aaron B. Caughey¹

¹Oregon Health & Science University, Portland, OR, ²Legacy Health, Portland, OR

OBJECTIVE: Obese women are at increased risk of venous thromboembolic events (VTE) after cesarean delivery, but outcome and cost data are lacking to definitively recommend an optimal strategy for VTE prophylaxis. The purpose of this study is to compare obstetric outcomes and cost-effectiveness of post-cesarean VTE prophylaxis with low molecular weight heparin (LMWH) plus intermittent pneumatic compression devices (IPCs), versus IPCs alone, in an obese population.

STUDY DESIGN: We built a decision-analytic model comparing prophylactic IPCs versus IPCs plus LMWH in a theoretic cohort of 100,000 obese women undergoing cesarean delivery. All model inputs were derived from the literature. Outcomes included maternal death, VTE events, heparin-induced thrombocytopenia (HIT), major hemorrhage, recurrent VTE, costs, and quality-adjusted life years (QALYs). Base case, cost-effectiveness, and sensitivity analyses were performed, and additional analyses were performed to investigate the impact of morbid obesity (BMI >40) and emergent cesarean delivery on the model outcomes.

RESULTS: Compared to IPCs alone, adding LMWH would prevent 448 VTE events, 11 cases of recurrent VTE, and 5 maternal deaths. This strategy also optimized total QALYs. Although adding LMWH was three times as expensive and would result in higher rates of hemorrhage and HIT, LMWH plus IPCs was ultimately incrementally cost-effective compared to IPCs alone at \$88,001 per QALY. Furthermore, LMWH plus IPCs was increasingly cost-effective in obese women undergoing emergent cesarean (\$54,626/QALY), morbidly obese women (\$43,056/QALY), and morbidly obese women undergoing emergent cesarean (\$26,569/QALY).

CONCLUSION: In obese women, post-cesarean VTE prophylaxis with IPCs plus LMWH is more costly but improves outcomes, and is thereby a cost-effective strategy compared to IPCs alone, particularly in cases of morbid obesity and emergent cesarean delivery.