182 ELEVATED VAGINAL SIALIDASE ACTIVITY IS A PREDICTIVE MARKER OF EARLY PRETERM BIRTH AMONG BACTERIAL VAGINOSIS POSITIVE WOMEN   SABINA CAUCI[1], JENNIFER CULHANE[2], [1]University of Udine, Biomedical Sciences and Technologies, Udine, ITALY, Italy, [2]Children's Hospital of Philadelphia, Philadelphia, Pennsylvania

OBJECTIVE: Bacterial vaginosis (BV) has been positively associated with preterm birth, however only few BV positive pregnant women will have an adverse pregnancy outcome. Thus, more effective markers of risk are necessary to properly select women which require treatment. We aimed to assess if an objective and non-invasive vaginal fluid biomarker, sialidase activity, is an early predictor for preterm birth (20 to <37 weeks' gestation), and particularly for early preterm birth (<34 weeks' gestation).

STUDY DESIGN: Low and high cutoffs for sialidase activity were examined in a case-control study of 461 BV positive US women (from a study population of 1,806 women enrolled in Philadelphia) with samples collected at mean 12 weeks' gestation. A total of 69 preterm deliveries (53 spontaneous), 31 miscarriages and 352 normal term deliveries (>37 weeks' gestation, birth weight >2500 g) vaginal fluids were analyzed for sialidase activity.

RESULTS: Any positive sialidase activity (>0.19 nmol of converted substrate) was not associated with adverse pregnancy outcomes. Conversely, progressively high sialidase activity cutoffs were significantly associated with increased risk of adverse outcomes. Specifically, sialidase activity >5, and >10 nmol of converted substrate demonstrated odds ratio (OR) 1.56 (CI 1.01-2.41), and OR 2.14 (CI 1.25-3.64), respectively, for a composite variable including all adverse birth outcomes. However, only the highest sialidase cutoff was significantly associated with early preterm births (20-<34 weeks' gestation), with OR 3.57 (CI 1.61-7.92). None of the sialidase thresholds predicted late preterm birth at 34-<37 weeks' gestation.

CONCLUSION: In this US population of mostly black, poor pregnant women, early gestation finding of elevated sialidase in vaginal fluid was strongly associated with early preterm birth.

183 MATERNAL-FETAL MEDICINE SPECIALIST WORKFORCE DENSITY AND DISTRIBUTION IN THE UNITED STATES 1998-08   SCOTT SULLIVAN[1], ELIZABETH PLATZ[2], ROGER NEWMAN[3], CHARLES RITTENBERG[2], GREER ALBERGOTTI[1], [1]Medical University of South Carolina, Charleston, South Carolina, [2]Medical University of South Carolina, Obstetrics and Gynecology, Charleston, South Carolina, [3]Medical University of South Carolina, Maternal Fetal Medicine, Mount Pleasant, South Carolina

OBJECTIVE: To determine the trends in Maternal-Fetal Medicine (MFM) specialist density and distribution between 1998-2008 in the United States.

STUDY DESIGN: This was a cross-sectional, observational study of MFM specialist density in the United States from 1998-2008. Individual state provider density data were obtained directly from the membership department of the Society for Maternal-Fetal Medicine. Fellows in training and honorary/affiliate members were not considered for this analysis. State demographic data including population density and birthrates was obtained from the US Census Bureau. Provider densities were calculated for each region and individual state by MFM per 10,000 live births to control for differences in population. Gini coefficients and Lorentz curves for MFM providers were calculated as measures of equality of distribution and compared to average US physician values previously published.

RESULTS: Absolute numbers of MFM specialists in the United States have increased by 28% from 1998-2008. The national provider MFM density has increased in the same time frame from 3.4 to 4.1 providers per 10,000 live-births. The Northeast region has the highest MFM median provider density and the Midwest region the lowest (6.6 [IQR 2.1] vs. 3.1 [IQR 1.3]). There was a significant difference seen in the median change of MFM density among regions (p<.03) with the Midwest region having the lowest overall median change and the South the highest. (-1.0 [IQR 0.87] vs. 0.13 [IQR 0.65]). The Gini coefficient for MFM providers increased from 0.213 to 0.243, indicating increased mal-distribution. Lorentz curves for distribution were calculated, which indicate MFM providers are less equitably distributed than the average physician population in the United States (0.243 vs. 0.215).

CONCLUSION: The density of practicing MFM specialists has increased slightly relative to birthrate from 1998-2008. However, these MFM specialists have become more mal-distributed and are less equally distributed than the average physician population in the United States.

184 OBSTETRIC FACTORS AFFECTING RESPIRATORY MORBIDITY AMONG LATE PRETERM INFANTS   KARIN FUCHS[1], CATHERINE ALBRIGHT[1], KAREN SCOTT[1], PHYLLIS GYAMFI[2], CYNTHIA GYAMFI[1], [1]Columbia University, New York, New York, [2]ORC Macro, Applied Research Division, Atlanta, Georgia

OBJECTIVE: To determine the frequency of respiratory morbidity among late preterm infants, and to identify risk factors associated with respiratory morbidity in this population.

STUDY DESIGN: This was a retrospective cohort study of late preterm infants (defined as 34 0/7 weeks to 36 6/7 weeks) delivered between January 2005 and December 2006. Records were reviewed to determine potential risk factors contributing to respiratory morbidity including gestational age (GA) at delivery, mode of delivery, plurality, gender, antenatal steroid exposure, maternal diabetes. Neonatal records were reviewed to determine newborn respiratory outcome. A neonate was considered to have respiratory morbidity if they had respiratory distress syndrome (RDS), transient tachypnea (TTN), or if they required use of therapeutic CPAP or mechanical ventilation. Cases with major fetal malformations were excluded.

RESULTS: A cohort of 722 infants was identified of which 117 (16.2%) had respiratory morbidity. Of those, 15 (2.1%) had RDS, 28 (3.9%) had TTN, 108 (15%) received CPAP, and 5 (0.7%) received mechanical ventilation. Stratified by GA, 37.8% (56/148) of neonates born at 34 weeks experienced respiratory morbidity as compared to 16.5% (38/230) at 35 weeks and 6.7% (23/344) at 36 weeks (p <0.005). After adjusting for gestational age, cesarean delivery was the only factor associated with a statistically significant increased risk of respiratory morbidity (p 0.046).

CONCLUSION: The frequency of respiratory morbidity among late preterm infants decreases by approximately 50% with each completed week of gestation between 34 0/7 and 36 6/7 weeks. Cesarean delivery is a risk factor for respiratory morbidity among late preterm infants across all gestational ages.

Influence of obstetric factors on respiratory morbidity of late preterm infants after adjusting for GA:

	Adj OR	95% CI	p
Cesarean Delivery	1.621	1.008, 2.609	0.046
Male Gender	1.210	0.791, 1.851	0.379
Prior ACS Exposure	0.963	0.574, 1.616	0.885
Maternal diabetes	0.937	0.483, 1.817	0.848
Twin	0.880	0.556, 1.393	0.585

185 NEONATAL AND MATERNAL OUTCOMES ASSOCIATED WITH LIMITED GESTATIONAL WEIGHT GAIN AMONG OBESE PREGNANT WOMEN   KIMBERLY VESCO[1], VICTOR STEVENS[1], JOANNE RIZZO[1], PATRICIA DIETZ[2], WILLIAM CALLAGHAN[2], CAROL BRUCE[2], DONALD BACHMAN[1], TERESA HILLIER[1], MARK HORNBROOK[1], [1]Kaiser Permanente Center for Health Research, Portland, Oregon, [2]Centers for Disease Control and Prevention, Atlanta, Georgia

OBJECTIVE: We evaluated the effect of minimal weight gain or weight loss during pregnancy on maternal and neonatal outcomes among obese women.

STUDY DESIGN: In a large health maintenance organization, we conducted a retrospective cohort study of 12,700 women who delivered a term, singleton, liveborn infant between 2000 and 2005. Obesity was defined as BMI $\geq$30 kg/m^2 (n=3,047, 24%). Total weight gain (last available - first available antenatal weight) was categorized as <0, 0-15, and $\geq$15 lbs. Maternal and neonatal outcomes were identified through electronic medical records and by ICD-9 and DRG codes.

RESULTS: Overall, mean weight gain was 24.5 lbs (range −57.8 to 98.0). Five percent of obese women lost weight during pregnancy (mean −6.9 lbs, SD 7.2), 24% gained 0-15 lbs (mean 9.2 lbs, SD 4.3), and 71% gained $\geq$15 lbs (mean 31.6 lbs, SD 12.3). The table demonstrates maternal and neonatal outcomes by weight change category.

Outcomes	Weight loss (n=143)	Weight gain 0-15 lbs (n=725)	Weight gain ≥15 lbs (n=2179)	
	N (%) or mean (SD)			p
Maternal				
C-section	46 (32.9%)	231 (32.3%)	772 (36.1%)	.15
Gestational hypertension, preeclampsia	13 (9.1%)	97 (13.4%)	382 (17.5%)	.002
Neonatal				
Birthweight (grams)	3409 (442)	3510 (479)	3671 (506)	.0001
Macrosomia (birthweight >4500g)	0 (0.0%)	13 (1.8%)	120 (5.5%)	.0001
Low birth weight (<2500 g)	2 (1.4%)	9 (1.2%)	26 (1.2%)	.97
5 minute Apgar <7	1 (0.7%)	4 (0.6%)	30 (1.4%)	.17
Clavicular fracture/brachial plexus injury	0 (0.0%)	6 (0.8%)	25 (1.2%)	.35
Hypoglycemia	3 (2.1%)	6 (0.8%)	36 (1.7%)	.23
Hyperbilirubinemia	15 (10.5%)	96 (13.2%)	314 (14.4%)	.35

CONCLUSION: In this population, minimal weight gain or weight loss during pregnancy was associated with lower risks of hypertensive disorders of pregnancy and macrosomia; whereas other measures of adverse outcomes were not significantly different.