## 105-S

MATERNAL ANEMIA AND PRETERM BIRTH: A PROSPECTIVE COHORT STUDY. *Q Zhang, C V Ananth, Z Li, J C Smulian (University of Medicine and Dentistry of New Jersey, New Brunswick, NJ 08901)

Objective: We examined if anemia both within and across trimesters during gestation is associated with preterm birth. Methods: We conducted a secondary analysis of data from a population-based prospective cohort in 13 counties of East China (1993–96). Singleton live births delivered at 20–44 weeks to women with at least 1 hemoglobin measure during pregnancy were included (n = 160,700). Preterm birth (<37 weeks) was stratified as preterm premature rupture of membranes (PROM), spontaneous onset of labor and those resulting from medical interventions. Hemoglobin increase of ≥1 g/dL and hemoglobin decrease of >1 g/dL between the 1st and 3rd trimesters were used as proxies for hemo-dilution and hemo-concentration, respectively. Associations were expressed by hazard ratios (HR) derived from Cox proportional hazards regression models after adjusting for potential confounders. Results: Preterm birth rates were 4.1% for anemic and 5% non-anemic women ($P < 0.05$). In comparison to women with hemoglobin of 11 g/dL (reference), hemoglobin ≤5 g/dL was associated with the highest risk for preterm PROM (HR 3.3, 95% CI 1.4, 7.7) with progressively declining risk with increasing hemoglobin. In contrast, low hemoglobin in the 3rd trimester was associated with reduced risk for spontaneous preterm labor. Anemia was not associated with indicated preterm birth. Hemodilution, but not hemo-concentration, across gestation was associated with up to 23% reduced risk for preterm birth. Conclusion: Early pregnancy anemia is associated with increased risk for preterm PROM, while anemia in late pregnancy is associated with reduced risk for spontaneous preterm labor. Adequate physiological hemo-dilution may be associated with reduced risk for preterm birth.

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HUMAN IMMUNODEFICIENCY VIRUS (HIV) TESTING DURING PREGNANCY, 1997–2006. *J M Lawrence, I-LA Liu, W J Towner (Kaiser Permanente Southern CA, Pasadena CA 91101)

We assessed the prevalence and correlates of HIV testing among pregnant women who gave birth at ≥20 weeks gestation from 1/1/1997–12/31/2006 in all southern CA Kaiser Permanente hospitals who were insured for ≥31 days of pregnancy. Maternal age, gravidity, parity, month starting prenatal care (PNC), and education are from the birth certificate; medical center, year of delivery, and insurance duration are from administrative data; HIV testing is from laboratory data; and median household income was based on census block. Logistic regression analyses were used to generate adjusted odds ratios (OR) and 95% confidence intervals (CI) for each variable. Of the 307,221 pregnancies (51% Hispanic [HSP], 27% non-Hispanic White [NHW], 11% Asian/Pacific Islanders [A/PI], 11% Black [BLK]) to women without HIV pre-pregnancy, the proportion tested for HIV increased from 77.7% (CI: 77.2%, 78.1%) in 1997 to 91.0% (CI: 90.7%, 91.3%) in 2006. In the adjusted model, compared with HSP women, NHW (OR 0.58 CI 0.57, 0.60), A/PI (OR 0.76 CI 0.73, 0.79) and BLK (OR 0.82 CI 0.79, 0.86) women were less likely to be tested. Increasing maternal age was linearly associated with decreased testing. Women with > high school (HS) education were 13% less likely to be tested than HS grads; women living in the highest income tertile blocks were 9% less likely to be tested than those in the lowest tertile. Women enrolling in PNC after the 1st trimester, and women with insurance gaps were 15% and 43% less likely to be tested, respectively. In 2006, 91% of all women in this diverse population had HIV testing during their pregnancies. Older, more educated women living in higher income areas, and women who started PNC later, and had insurance gaps during pregnancy were least likely to be tested.

## 107-S

RECURRENCE OF PRETERM PREMATURE RUPTURE OF MEMBRANES (PPROM) IN RELATION TO MATERNAL RACE. *D Getahun, D Strickland, C V Ananth, M J Fassett, R S Kirby, D A Sacks, S J Jacobsen (Research & Evaluation, Kaiser Permanente Southern California, Pasadena, CA 91101)

It is unknown how the increased risk of PPROM recurrence varies by maternal race and interpregnancy interval. We examined the recurrence risk of PPROM in 155,466 women who, following an index pregnancy complicated by PPROM had two, and 30,839 women who had three successive singleton pregnancies of ≥20 weeks' duration. This population-based retrospective cohort analysis utilized the Missouri 1989–97 longitudinally-linked database. Logistic regression analysis models estimated the odds ratio (OR), adjusting for potential confounders. The rate of PPROM in the 1st, 2nd, and 3rd pregnancies were 2.4%, 2.5%, and 2.7%, among African-Americans (AA), and 1.3%, 1.0%, and 1.0% among Caucasians ($p < 0.01$). The odds of recurrence of PPROM between the 1st and 2nd pregnancies were 4.6 (95% confidence interval [CI] 3.4–6.2) for AA women and 6.7 (95% CI 5.4–8.4) for Caucasian women. A 1.6-fold (95% CI 1.1–2.5) higher risk for a recurring PPROM in the 2nd pregnancy was noted in AA compared with Caucasian women. Compared to those with no history of PPROM, women with PPROM in both their first 2 pregnancies were at over 5.6-fold increased odds of recurrence in the 3rd pregnancy (95% CI 1.2–26.0). This recurrence was marginally lower when women had PPROM in the 2nd, but not in the 1st (OR 4.1, 95% CI 2.5–6.5) pregnancy. In both races, compared with a pregnancy ≥2 years following a prior pregnancy, a pregnancy within one year of delivery is associated with a 1.8 to 2-fold recurrence of PPROM. Race plays a role in recurrence risk of PPROM. The higher rate of PPROM observed in women with previous PPROM appears to be attributable to a shorter interpregnancy interval.

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ROTATING SHIFT WORK AND MENSTRUAL CYCLE CHARACTERISTICS OF NURSES. *C C Lawson, E A Whelan, E N Hibert, D Spiegelman, J W Rich-Edwards (National Institute for Occupational Safety and Health, Cincinnati, OH 45226)

Nonstandard work hours have been associated with hormonal differences, possibly disturbing physiological functions that are circadian in nature. We investigated the relationship between rotating shift work and usual menstrual cycle patterns in the Nurses' Health Study II. Data from 74,436 participants who reported being premenopausal, having menstrual periods, and not using oral contraceptives were analyzed. Of these 8,519 (11.4%) and 5,239 (7.0%) reported working rotating shifts for 1–19 months and 20+ months, respectively, between 1991 and 1993. In 1993, 871 (1.2%) reported short menstrual cycle length (<21 days), 3,477 (4.7%) reported long cycles (40+ days) and 7,469 (10.0%) reported irregular cycle patterns (>7 days variability). Logistic regression was used to estimate the odds ratios (ORs) for these three outcomes, adjusting for age, parity, smoking, alcohol use, and physical activity. Rotating shift work was associated with an increased odds of having an irregular cycle pattern: 1–19 months, OR = 1.2, 95% confidence interval (95% CI) = 1.1–1.3; 20+ months, OR = 1.4 (1.3–1.5). Rotating shift work was also associated with short cycles [ORs compared to normal cycles = 1.3 (1.1–1.6) for 1–19 months and 1.4 (1.1–1.8) for 20+ months]. Long cycles were also more common among rotating shift workers [ORs for long compared to normal cycles = 1.2 (1.1–1.4) for 1–19 months and 1.4 (1.2–1.5) for 20+ months]. When further adjusting for BMI, all ORs were slightly attenuated but still statistically significant. These data suggest that menstrual function is adversely affected by rotating shift work, possibly through circadian disruption.

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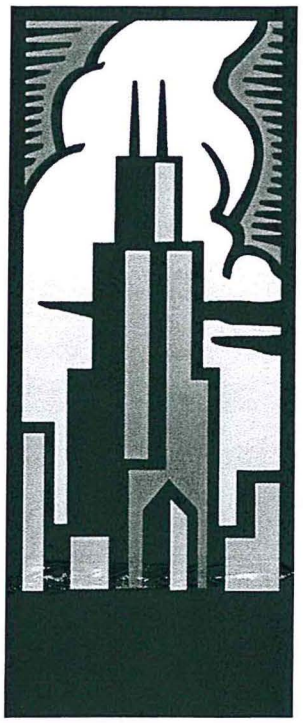

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