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Levonorgestrel Levels in Nonobese and Obese Women Using LNG20, a New Intrauterine Contraceptive [262]

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INTRODUCTION: Approximately 324,000 pregnant women are assaulted annually, placing them at risk for numerous adverse maternal outcomes including hemorrhage, which has been shown to increase mortality. This study examined antepartum and postpartum hemorrhage rates in women who were victims of assault and nonassaulted women in a control group.

METHODS: The Nationwide Inpatient Sample was used to collect data regarding all inpatient hospitalizations of women with codes for pregnancy and delivery (identified by International Classification of Diseases, 9th Revision code) and assault (identified by e-code) between January 2003 and December 2011. Rates of antepartum and postpartum hemorrhage were compared for women with and without e-codes for assault.

RESULTS: Out of 23,471,546 inpatient hospitalizations, 11,028 (0.05%) involved pregnant women who were assaulted. Assaulted women were more likely to be ages 15–24 years (59.6%) than 25 years or older (40.38%) ($P<.002$). Antepartum hemorrhage was seen in 11.6% of assaulted women and 2.1% of nonassaulted ($P<.001$). There was no significant difference in postpartum hemorrhage rates between assaulted (2.3%) and nonassaulted women (2.9%) ($P=.27$).

CONCLUSION: Assault occurs commonly during pregnancy and places women at increased risk of complications including antepartum hemorrhage. Physicians must focus on screening women for domestic violence and other causes of preventable trauma by assault to reduce the rates of antepartum hemorrhage.

3:15 PM–4:15 PM
EDUCATION
Demographic Changes in the U.S. Adult Female Population During the Next 30 Years [84]

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INTRODUCTION: Planning ahead to deliver women's health care requires an understanding of the future growth and diversity of the target population. The objective of this investigation was to project the nation's adult (18 years or older) female population by age and race over a 30-year period (2015–2045), which encompasses the usual professional lifespan of an obstetrician–gynecologist in active practice.

METHODS: This descriptive study involved a review of U.S. Census Bureau projections using a cohort-component method beginning with an estimated base population for July 1, 2011. Annually updated components of adult female population change (mortality, fertility, and net international migration) were based on a time-series analysis of historical trends.

RESULTS: The adult female population is expected to increase by 20.5% from 163.0 million to 196.4 million between 2015 and 2045. The non-Hispanic white population will peak in 2024 and then decrease slowly thereafter. Significant increases will be observed among the Hispanic (28.0 million to 50.0 million), black (20.8 million to 26.0 million), Asian (8.6 million to 14.6 million), and Native American and Alaska Native (1.2 million to 1.4 million) populations. The working-age population (18–64 years old) is expected to increase by 10.5 million, whereas its share of the total female population will decline by 5.1–56.2%. The older population (65 years or older) is expected to nearly double and remain predominately non-Hispanic white (40.7%).

CONCLUSION AND IMPLICATIONS: The growing U.S. adult female population will gradually be older and more diverse with no racial or ethnic group being in the majority.

CONTRACEPTIVE/FAMILY PLANNING
Effect of State-Based Policies on Teen Birth and Teen Abortion Rates in the United States [261]

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INTRODUCTION: The United States has one of the highest teen birth rates among developed countries. Interstate birth rates and abortion rates vary widely as do policies on abortion and sex education. The objective of our study is to assess whether the U.S. state-level policies regarding abortion and sexual education have an effect on teen birth and teen abortion rates.

METHODS: We carried out a state-level ($n=51$) retrospective observational cross-sectional study using data imported from the National Vital Statistics System. State policies were obtained from the Guttmacher Institute. We used descriptive statistics and regression analysis to evaluate the effect of state policies on teen birth and teen abortion rates.

RESULTS: The state-level mean birth rates when stratifying between restrictive or permissive policies were not statistically different. For sex education policies, 39.8 per 1,000 compared with 45.1 per 1,000 ($P<.219$); for parents' consent to abortion, 45 per 1,000 compared with 38 per 1,000 when the minor could consent ($P<.073$); for deterrents to abortion 45.4 per 1,000 compared with 37.4 per 1,000 ($P<.045$). Political affiliation (35.1/1,000 compared with 49.6/1,000, $P<.001$) and ethnic distribution of the population were the only variables associated with a difference between mean teen births. Lower teen abortion rates were however associated with restrictive abortion policies, specifically lower in states with financial barriers, deterrents to abortion, and requirement for parental consent.

CONCLUSION: Although teen birth rates do not appear to be influenced by state-level policies, state-level policies restrictive to abortion appear to be associated with a lower state teen abortion rate.

Levonorgestrel Levels in Nonobese and Obese Women Using LNG20, a New Intrauterine Contraceptive [262]

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OBJECTIVE: Evaluate the levonorgestrel pharmacokinetics in nonobese and obese women after placement of LNG20 intrauterine contraceptive at 3 years of use.

METHODS: In a clinical trial to evaluate the LNG20 intrauterine contraceptive for contraception, levonorgestrel plasma concentrations were determined in 279 participants at the 36-month visit. Blood samples were collected from 166 nonobese LNG20, 77 obese LNG20, 23 nonobese Mirena, and 13 obese Mirena participants. Levonorgestrel plasma levels between nonobese and obese participants were compared using a Wilcoxon Mann-Whitney test.

RESULTS: The mean plasma levonorgestrel concentrations at month 36 was 135±51 pg/mL for LNG20 overall; 145.8 ±47.7 pg/mL and 111.3±50.4 pg/mL for LNG20 nonobese and obese participants and 132.1±62.6 pg/mL for Mirena overall; 148.5±71.5 pg/mL and 103.2±27.5 pg/mL for Mirena nonobese and obese participants, respectively. Obese participants using LNG20 and Mirena had lower plasma levels than nonobese participants ($P<.5$). No difference in efficacy in obese and nonobese LNG20 participants was observed for the first 3 years of clinical use.

CONCLUSION: Levonorgestrel plasma concentration at month 36 did not differ between LNG20 and Mirena nonobese and between LNG20 and Mirena obese participants. Obese women demonstrate significantly lower levonorgestrel concentrations than nonobese women in LNG20 with comparable efficacy in both groups,

highlighting the predominantly local mechanism of action of the intrauterine contraceptive.

Health Care Provider Experiences With a Centralized Referral Network for Later Second-Trimester Abortions
The Case of Massachusetts [263]

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INTRODUCTION: Socially vulnerable women are more likely to present for induced abortion in the later second trimester, and many report socioeconomic and interpersonal barriers that may delay care. The Access Program is a statewide, centralized referral network for women seeking 19+-week abortion services. The Program assists in providing pregnancy options counseling, individual scheduling of abortion care, triaging of preprocedure medical and social needs, and financial assistance. We performed a mixed-methods study to evaluate the acceptability, effect, and lessons learned from this unique program.

METHODS: Thirty-three physicians, nurses, and staff working in hospitals accepting referrals from the Access Program were included in initial recruitment. Participation included completing a web-based survey, undergoing a semistructured qualitative interview, or both. We used inductive coding methods to analyze interview data.

RESULTS: We received 16 completed surveys and conducted seven interviews. Common themes were identified using data from both methods. Health care providers expressed that the Program improved accessibility for patients and reduced the amount of office time spent on logistic factors. Patients referred through the Access Program were described as more socially and financially complex. Assistance with patient education, transportation, finances, and accommodations were identified as particularly helpful services. The utility of health care providers being able to hand off patients to the Access Program for services was also highlighted. Overall, respondents reported high satisfaction with the Program.

CONCLUSION: The Access Program is highly acceptable to health care providers and positively affects patient care for a socioeconomically complex population. Implementing similar programs may help ameliorate barriers to care for vulnerable women in other states.

Fertility Awareness in Adolescents in Sub-Saharan Africa
Evidence From Demographic and Health Surveys [264]

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INTRODUCTION: Adolescents in sub-Saharan Africa report an unmet need for contraception with some adolescents using periodic abstinence as their current contraceptive method. Undesired pregnancies in sub-Saharan African adolescents are associated with significant maternal and neonatal morbidity, and fertility awareness in this population needs to be further explored.

METHODS: Nationally representative Demographic and Health Surveys (USAID) interviewed 45,054 adolescents (aged 15–19 years) from 18 least developed sub-Saharan African nations regarding contraception and fertility awareness. Analyses evaluated fertility awareness, contraceptive use, and unwanted pregnancies.

RESULTS: Adolescents using contraception (n=3,384) reported periodic abstinence (n=596, 17.6%) as their current contraceptive method. All adolescents (n=45,054) were queried regarding timing of ovulation, but only 18.4% (n=8,306) were able to correctly identify this as occurring in the middle of her cycle. Adolescents using periodic abstinence were significantly more likely (68.2% compared with 33.5% of those using another method, $P<.001$) to correctly identify timing of ovulation. Adolescents who had completed secondary or higher education (n=269) were significantly more likely to be able to correctly identify timing of ovulation (secondary odds ratio [OR] 2.888, 95% confidence interval [CI] 2.193–3.805, higher OR 7.866, 95% CI 3.433–18.021).

CONCLUSION: A majority of adolescents in sub-Saharan Africa are unaware of timing of ovulation in regard to their menstrual cycles, and a significant number are using periodic abstinence as their contraceptive method. A multidisciplinary approach is key because education regarding fertility awareness and contraceptive options may be a key step in decreasing unintended pregnancies.

OBSTETRICS
Evaluating Ethnic Differences in the Labor Curve in Chinese Women
A Retrospective Cohort Study [265]

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OBJECTIVE: The contemporary obstetric population has evolved since Friedman's landmark studies. Evidence suggests that Chinese multiparous women have shorter labor progression. The goal of this study is to evaluate the lengths of first and second stage of labor among Chinese women.

METHODS: We conducted a retrospective cohort study of term, singleton, vertex, laboring Chinese women from January 4, 2014, to August 13, 2014. We excluded patients with chorioamnionitis, fetal demise, and a trial of labor after cesarean delivery. Cervical dilatation was recorded from admission to delivery.

RESULTS: This study included 208 patients. In nulliparous women, the mean maternal age was 26.1±3.6 years and neonatal birth weight was 3,192.3±348.8 g. The mean cervical dilatation on admission was 4.3±1.6 cm, and the time to full dilatation was 6.8±3.9 hours. The mean second stage was 1.2±0.8 hours. In multiparous women, the mean maternal age was 29.8±4.6 years and neonatal birth weight was 3,327.2±389.2 g. The mean cervical dilatation was 4.9±1.9 cm on admission, and the time to full dilatation was 3.2±2.7 hours. The mean second stage was 0.3±0.4 hours.

CONCLUSION: In comparison with Friedman's nulliparous patients, our primigravid patients had a significantly faster first stage of labor ($P<.001$) and second stage ($P=.006$). In comparison with Friedman's multiparous patients, our multiparous patients had a considerably shorter first stage of labor ($P<.001$). Preliminary findings suggest standard management of labor may not apply in this population. Ethnic specific labor progression should be explored further.

Association Between Raynaud's Phenomenon and Pregnancy Complications [266]

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