POSTER SESSION II

Thursday, January 21, 1999
3:30 pm - 5:30 pm

Yosemite and Franciscan Rooms

CATEGORIES

Clinical Obstetrics
Infectious Disease
Intrapartum Fetal Evaluation

Poster Numbers

192-306

Judges: **Thomas J. Benedetti, MD**
Richard K. Silver, MD
Joseph A. Spinnato, MD

192 ARE ANTENATAL GLUCOCORTICOIDS EFFECTIVE IN ANTEPARTUM HEMORRHAGE? *A. Elimian*, U. Verma, J. Shah N. Tejani. New York Medical College, Valhalla, NY.

OBJECTIVE: The 1994 NIH Consensus Development Conference report acknowledges and our review of available English language literature reveals that, no studies have evaluated the effectiveness of antenatal steroids(AS) in the clinical setting of placenta previa(PP) and abruptio placentae(AP) in spite of early warning and time for administration of AS. The purpose of this study was to determine the effectiveness of AS in the clinical setting of antepartum hemorrhage(APH).

STUDY DESIGN: Consecutive neonates weighing ≤ 1750g delivered by women with APH between January, 1990 and July 1997 were entered into the study. Neonates born following APH, PP and AP were stratified according to AS exposure and compared for RDS, intraventricular hemorrhage(IVH) and periventricular leucomalacia(PVL), major brain lesions(MBL, grades 3 and 4 IVH, IVH/PVL,PVL), NEC, PDA, neonatal sepsis(NS) and neonatal death(ND). The groups were also compared for gestational age(GA), birth weight(BW), BW%, Apgar scores(APS), postnatal surfactant exposure(PSE), clinical(CA) and histologic chorioamnionitis(HCA). Student T- test, chi-square and Fisher exact tests were used for analysis.

RESULTS: A total of 122 neonates weighing 1750 grams or less were delivered of mothers with antepartum hemorrhage during this period. There were no differences between groups with regards to GA, BW, BW%, APS, PSE, PDA, NEC, NS, CA and HCA. A comparison of groups with regards to major neonatal outcomes follows:

	APH			Placenta Previa			Abruptio Placentae		
Index	+AS	-AS	P	+AS	-AS	P	+AS	-AS	P
N	31	91		13	30		18	61	
RDS	39	57	.07	31	70	.01	44	51	.64
IVH/PVL%	13	34	.02	8	43	.03	17	30	.37
MBL%	3	19	.04	0	17	.3	5.5	20	.28
ND%	3	14	.11	0	17	.3	5.5	13	.68

CONCLUSIONS: Antenatal steroids significantly decrease the incidence of RDS and IVH/PVL in the presence of symptomatic placenta previa but appears to have no such impact in the presence of abruptio placentae.

193 PERINATAL OUTCOMES OF SPONTANEOUS VERSUS IN-VITRO FERTILIZATION TRIPLET GESTATIONS: *A. Elimian*, U. Verma, R. Fig ueroa, N. Tejani. New York Medical College, Valhalla, NY.

OBJECTIVE: To compare perinatal outcomes of triplet pregnancies conceived spontaneously with those conceived by IVF.

STUDY DESIGN: All triplet pregnancies cared for and delivered at Westchester Medical Center between January 1990 and July 1997 were entered into this study. The spontaneous triplet group was compared to the IVF triplet group for maternal and perinatal outcome variables. Descriptive statistics, Student T test, and Chi-square and Fisher exact tests were used for analysis.

RESULTS:	Spontaneous	IVF	*P*-value
N of preg/neonates	21/63	24/72	
Maternal age(y ± SD)	29.6 ± 6.1	31.5 ± 3.4	.27
Prophylactic Cerclage(%)	5(23.8)	10(41.7)	.21
PTL(%)	20(95.2)	20(83.3)	.35
PIH(%)	2(9.5)	7(29.2)	.14
Gestational diabetes(%)	1(4.8)	6(25)	.10
Anemia(%)	5(23.8)	4(16.7)	.71
Antenatal Steroids	8(38.1)	9(37.5)	.97
GA(wks, mean ± SD)	32.2 ± 3.25	32.0 ± 2.7	.82
Delivery at ≥ 31 wks (%)	15(71.4)	19(79.2)	.55
Delivery at ≥ 32 wks (%)	13(61.9)	16(66.7)	.74
Birth weight (g, mean ± SD)	1752 ± 549	1781 ± 453	.85
Birth weight ≤ 1500g (%)	23(36.5)	20(27.8)	.28
Birth weight ≤ 1000g (%)	5(7.9)	4(5.6)	.73
RDS (%)	12(19)	12(16.7)	.72
IVH/PVL (%)	3(4.8)	12(16.7)	.03
Major brain lesions	0(0(	6(8.3)	.03
Neonatal mortality (%)	1(1.6)	0(0)	.47

CONCLUSIONS: Perinatal outcomes are comparable between spontaneously conceived and IVF triplet pregnancies. The finding of increased incidence of intraventricular hemorrhage and periventricular leucomalacia in the IVF group deserves further investigation.

194 THE INFLUENCE OF HISTOLOGIC CHORIOAMNIONITIS ON PERINATAL OUTCOMES: *A. Elimian*, U. Verma, R. Cipriano, J. Shah N. Tejani. New York Medical College, Valhalla, NY.

OBJECTIVE: To determine the impact of histologic chorioamnionitis (HCA) on perinatal outcomes.

STUDY DESIGN: Consecutive neonates weighing≤ 1750g delivered between Jan. 1990 and Dec. 1997 were entered into the study. Cases of clinical chorioamnionitis were excluded.The total population was stratified according to the presence of HCA and compared for RDS, intraventricular hemorrhage(IVH) and periventricular leucomalacia(PVL), major brain lesions, NEC, PDA, proven neonatal sepsis(NS) and neonatal death. The groups were also compared for gestational age(GA), birth weight(BW), birth weight %(BW%), Apgar scores and postnatal surfactant exposure. Descriptive statistics,Student T-test, chi-square and Fisher exact tests and logistic regression were used for analysis.

RESULTS: 1260 neonates ≤ 1750g were delivered during the study period.

Characteristics	HCA+(n=527)	HCA-(n=733)	*P*-value
GA(wks ± SD)	27.8 ± 3.1	29.9 ± 3.1	<.0001
Birth weight(g ± SD)	1093 ± 359	1248 ± 347	<.0001
Birth weight%	47.7 ± 22	34 ± 24	<.0001
5 min Apgar score<7	151(28.7%)	143(19.5%)	<.0001
Antenatal steroids	169(32.1)	244(33.3)	.65
Surfactant	317(60.2%)	320(43.7%)	<.0001
RDS	267(50.7%)	288(39.3%)	<.0001
IVH/PVL	169(32.1%)	170(23.2%)	<.0001
MBL	79(15%)	66(9%)	<.0001
NEC	32(6.1%)	17(2.3%)	<.0001
PDA	110(20.9%)	91(12.4%)	<.0001
NS	81(15.4%)	57(7.8%)	<.0001
Neonatal death	72(13.7%)	75(10.2%)	.06

Correcting for confounding variables, HCA was only significantly associated with lower GA and birth weight at delivery.

CONCLUSIONS: The presence of HCA significantly increases all major perinatal morbidities because of its higher association with preterm birth. This underscores the need to develop antenatal markers of subclinical infection.

195 INVESTIGATION OF THE INTERLEUKIN-1RECEPTOR ANTAGONIST GENE POLYMORPHISM IN RECURRENT MISCARRIAGE. O. Econimidou[x], *R. Walker*[x], J.Reid[x], N.Simpson[x], S.Duffy[x], J.J.Walker. Dept of Obs & Gynae, St. James's University Hospital, Leeds. LS9 7TF. UK.

OBJECTIVE: To identify if any association exists between the interleukin-1 receptor antagonist (IL-1RN) gene polymorphism and recurrent miscarriage.

STUDY DESIGN: The frequencies of the IL-1RN alleles were determined in a population of women and their partners who had had no previous live births and at least 3 miscarriages. As a control population, women attending the antenatal unit with no history of miscarriage and having a normal live delivery were recruited as controls.

RESULTS: Table 1: showing the distribution of IL-1RN genotypes in women suffering recurrent miscarriage.

IL-1RN genotype	1,1	1,2	1,3	1,4	2,2	Total
Affected Women	86	23	1	3	3	116
Control	35	7	0	0	4	46

χ^2=0.3, p is not significant

Table 2: showing the distribution of IL-1RN genotypes in the partners of women suffering recurrent miscarriage

IL-1RN genotype	1,1	1,2	1,3	1,4	2,2	Total
Partners of affected women	47	14	0	2	3	66
Partners of control women	22	7	0	2	0	31

χ^2=0.4, p is not significant

CONCLUSION: Carriage of the IL-1RN*2 allele which is associated with differential production in autoimmune diseases, is not increased in frequency in those couples most likely to suffer recurrent miscarriage.

196 NUCLEATED RED BLOOD CELL (NRBC) COUNT AS A PREDICTOR OF PERINATAL OUTCOME IN INFANTS ADMITTED TO THE NEONATAL INTENSIVE CARE UNIT (NICU). *Minior VK*[x], Shatzkin E[x], Divon MY. Depts. of Ob/Gyn and Neonatology, Albert Einstein College of Medicine, Lenox Hill Hospital and Long Island Jewish Medical Center, NY.

OBJECTIVE: We have previously demonstrated that elevated NRBC counts are associated with adverse perinatal outcome in the growth restricted fetus. Others have shown that elevated neonatal NRBC counts are linked with long term neurologic impairment. In the present study, we sought to examine NRBC count as a predictor of perinatal outcome in infants admitted to the NICU.

METHODS: All admissions to the NICU during 1997 were reviewed prospectively for perinatal outcome. Non-anomalous, genetically normal, inborn neonates with a CBC drawn within the first 4 hours of life were included. Various predictors of neonatal outcome were examined including gestational age at birth (GA), birthweight, 5 minute Apgar score, umbilical cord arterial pH (A pH) and base excess (A BE) as well as NRBC count at birth. Stepwise regression was used for statistical analysis.

RESULTS: 324 infants were admitted to the NICU in 1997. Of these, 222 met the inclusion criteria. We found that neonatal death (n=4) was independently predicted by elevated NRBC count (R^2=0.36, p<0.0001), large A BE (R^2=0.39, p<0.0001) and immature GA (R^2=0.43, p<0.0001). Stay in the NICU >10 days, neonatal intraventricular hemorrhage and hyperbilirubinemia were predicted only by immature GA (R^2=0.34, p<0.0001; R^2=0.17, p<0.0001 and R^2=0.13, p=0.0002, respectively). Elevated NRBC count and immature GA independently predicted use of mechanical ventilation (R^2=0.19, p<0.0001 and R^2=0.14, p<0.0001, respectively) and use of surfactant (R^2=0.15, p<0.0001 and R^2=0.19, p<0.0001, respectively). Only high NRBC count significantly predicted neonatal hypoglycemia and the need for blood pressure support agents (R^2=0.04, p=0.03 and R^2=0.16, p<0.0001, respectively). Neonatal seizure activity (n=5) was not predicted by any of these factors.

CONCLUSION: Our results indicate that in addition to gestational age and abnormal cord gases, NRBC count at birth is an important, independent predictor of several adverse perinatal outcomes.

197 A REGISTRY STUDY OF IVF BIRTHS IN SWEDEN 1982-1995 *U-B Wennerholm*[1x] and all IVF clinics in Sweden in collaboration with the Swedish Medical Board of Health and Welfare, Center for Epidemiological Studies. [1]Perinatal Center, Dept Ob Gyn, Sahlgrenska University Hospital, Östra, Göteborg, Sweden.

OBJECTIVE: To analyze the perinatal outcome of the complete Swedish IVF birth cohort in comparison with a population based control group.

STUDY DESIGN: In a retrospective registry study with data collected from all IVF clinics in Sweden, the perinatal outcome of all infants (n=5 856) born after IVF between 1982-1995 have been compared with a complete cohort of infants born after natural conception (n=1 505 724) using data from the Swedish Medical Birth Registry (SMBR), the Registry of Congenital Malformations and the Cancer Registry. Data was also analyzed after stratification for maternal age, parity, previous subfertility, year of birth and multiple pregnancy. Relative risk (RR) with 95% confidence interval (CI) was calculated.

RESULTS: In the IVF group, 42 deliveries (0.9%) were lost to follow-up. Multiple birth occurred in 27% in the IVF study group compared with 1% in the control group. Preterm birth (<37 weeks) occurred in 30% and 6%, and low birthweight (<2500g) in 27% and 5%, in the IVF study group and the control group, respectively. The mortality was 1.9% in the IVF group and 1.1% in the control group. For IVF singletons, the RR (95% CI) of extreme preterm birth (<32 weeks) was 3.5 (2.9-4.3). After stratification for maternal age, parity, and previous subfertility the RR (95% CI) was reduced to 1.5 (1.1-2.0). Malformations occurred in 5.4% of all IVF infants (RR 1.39, 95% CI 1.25-1.54). In the IVF group, an increased incidence of neural tube defects and esophageal atresia was found.

CONCLUSIONS: Children born after IVF had a considerably higher risk of being born preterm and with a low birthweight than other children. The rate of malformations was increased with 39%. A high incidence of multiple birth and maternal characteristics were the main factors responsible for the adverse outcome.

198 SECOND TRIMESTER PREGNANGY LOSS. *CW Benito,* ET Vostrovsky[x], AM Vintzileos, D Day-Salvatore[x], S Trout[x], S Shen-Schwarz[x], W. Lin[x]. UMDNJ–Robert Wood Johnson Medical School/St. Peter's Medical Center, New Brunswick, NJ

OBJECTIVE: To identify possible causes of second trimester loss in patients referred to a multidisciplinary Pregnancy Loss Evaluation Service.

STUDY DESIGN: Patients presenting to the Pregnancy Loss Evaluation Service (PLES) at our institution from 6/96 to 4/98 with second trimester loss were evaluated. Second trimester loss was defined as loss between 14 and 24 weeks gestation. All patients were evaluated by obtaining: history, physical, parental karyotypes, antiphospholipid antibody panel, TSH, prolactin, diagnostic hysteroscopy/hystero-salpingogram and placental pathology and/or autopsy from previous losses if available. All placental/autopsy specimens available were reviewed by a single perinatal pathologist. Case studies for each patient were then assembled and discussed in a multidisciplinary setting with maternal fetal medicine specialist, geneticist, perinatal pathologist, reproductive endocrinologist and rheumatologist. Pregnancy losses were then categorized into the following groups based on suspected primary etiologies: genetic, intraamniotic infection versus cervical incompetence (IAI), immunopathology, hormonal, uterine abnormalities, environmental or unknown. IAI losses were categorized according to placental pathology with funisitis, chorionic vasculitis, necrosis of amnion or the presence of pneumonitis on autopsy. In losses categorized as IAI cervical incompetence cannot be ruled out because of difficulty in distinguishing the initiating event. Each pregnancy loss was analyzed as an individual event. Immunopathology losses were categorized based on the presence of greater than two lesions of the chronic inflammatory type, decidual vascular type or coagulation related lesions. Genetic losses were categorized based on the presence of cytogenetics, multiple congenital anomalies or dysmorphology. Hormonal losses were categorized based on history of thyroid disease or diabetes. Environmental loss was categorized based on history of medication exposure.

RESULTS: A total of 45 patients with 59 second trimester losses were evaluated. All maternal karyotpyes were normal. Paternal karyotypes were abnormal in 3 patients: 2 with inversion of chromosome 9 (normal variant not associated with loss) and 1-mosaic for Klinefelter's syndrome. A positive ANA was found in 18 patients. All patients had negative anticardiolipin IgG and Lupus anticoagulant. TSH and prolactin were normal in all patients. Autopsies were available in 27 pregnancies. Three patients had uterine anomalies. No patient in the group studied had more than 2 second trimester losses.

The classification of losses according to the PLES service is as follows:

Infectious	23 (39%)
Immunopathology	18 (30%)
Genetic	13 (22%)
Idiopathic	3 (5%)
Uterine abnormalities	2 (4%)

CONCLUSIONS: 1. Second trimester loss can be classified 95% of time so that appropriate counseling, medical therapy, surgery can be given to the patient to improve pregnancy outcome.

199 ANTIPHOSPHOLIPID ANTIBODIES AND PLACENTAL HISTOLOGY IN SECOND TRIMESTER PREGNANCY LOSS. *CW Benito,* ET Vostrovsky[x], AM Vintzileos[x], D Day-Salvatore[x], S Trout[x], S Shen-Schwarz[x], W Lin[x]. UMDNJ–Robert Wood Johnson Medical School/St. Peter's Medical Center, New Brunswick, NJ

OBJECTIVE: To determine if a correlation exists between antiphospholipid antibodies and placental histology in second trimester pregnancy loss.

STUDY DESIGN: Patients presenting to the Pregnancy Loss Evaluation Service (PLES) at our institution from 6/96 to 4/98 with second trimester loss were evaluated in a multi disciplinary group setting by Maternal fetal medicine specialist, geneticist, perinatal pathologist, reproductive endocrinologist and rheumatologist. Second trimester loss was defined as loss between 14 and 24 weeks gestation. All patients were evaluated by obtaining: history, physical, antiphospholipid antibody panel, parental karyotypes, diagnostic hysteroscopy/hysterosalpingogram and placental pathology and/or autopsy from previous losses if available. The antiphospholipid antibody panel included an ANA, DsDNA, Anticardiolipin IgG and IgM and Lupus anticoagulant. All placental and autopsy specimens available were reviewed by a single perinatal pathologist. Placental histology was evaluated for evidence of infection (acute and chronic), chronic inflammatory lesions, decidual vascular lesions and coagulation related lesions. Pregnancy losses were then categorized into the following groups based on suspected primary etiologies: genetic, intraamniotic infection (IAI) versus cervical incompetence (CI), immunopathology, hormonal, uterine abnormalities, environmental or idiopathic. Each pregnancy loss was analyzed as an individual event. IAI was defined as the presence of funisitis, necrosis of amnion, chorionic vasculitis or pneumonitis on autopsy. IAI vs. CI losses were categorized by this method because cervical incompetence cannot be ruled out as a possible initiating event. Immunopathology losses were categorized as greater than 2 lesions of the chronic inflammatory type, decidual vascular type or coagulation related type. Genetic losses were categorized by cytogenetic studies, multiple anomalies or dysmorphology. Environmental losses were categorized by history of medication exposure. Hormonal losses were categorized by history of thyroid disease or diabetes.

RESULTS: A total of 59 second trimester losses (45 patients) were seen. A positive ANA was found in 18 patients with a range of 8.0 to 15. No significant differences were found based on a positive ANA or range of ANA titer with GA at loss, or placental histology (infection or chronic inflammatory lesions, decidual vascular lesions or coagulation related lesions). All patients had negative DsDNA, anticardiolipin IgG and IgM and Lupus anticoagulant. No differences were found between the categories of pregnancy loss based on the evaluation of the PLES group (infectious, genetic, immunopathology, uterine anomaly, hormonal, environmental or unknown) or any antiphospholipid antibody. No patient in the group studied had more than 2 second trimester losses.

CONCLUSIONS: In this group of patients presenting to a tertiary care center antiphospholipid antibodies did not appear to be associated with abnormal placental histology. When losses were categorized according to the PLES group no loss type was associated with antiphospholipid antibodies.

200 LACK OF PRENATAL CARE IS ASSOCIATED WITH INCREASED PERINATAL MORBIDITY IN UNPLANNED HOME DELIVERIES. *U. Magriples*, H.C. Moscovitz[x], M. Kiessling[x], J.A. Copel. Dept. OB/GYN, Emergency Medicine, Yale Univ., New Haven, CT.

OBJECTIVE: To evaluate factors contributing to poor outcome in unplanned out-of-hospital deliveries.

STUDY DESIGN: Retrospective cohort study of 91 field deliveries during a three-year period.

RESULTS: Sixty-eight women received prenatal care, 29.7% by private physicians (group 1), 45.1% by resident physicians in the university clinic (group 2). Twenty-three mothers, (25.2%), had no prenatal care (group 3). Fifty-six percent of group 2 had poor prenatal care in a previous pregnancy, including 12% with no prenatal care. Eighty-three percent of group 3 had a history of poor prenatal care in a previous pregnancy, including 44% with no prenatal care. Smoking, alcohol and drug use were least prevalent in group 1 ($p<0.01$) compared with groups 2 and 3, which were both greater than 50%. There was a significant difference in mean number of prenatal visits between groups 1 and 2 (11.9 and 4.3, $p<0.01$). Prenatal care in either private or university clinic settings was associated with higher neonatal weight and Dubowitz score ($p<0.01$) compared with patients without prenatal care. Neonatal ICU days and hospital stay were greatest in patients with no prenatal care. There was significantly higher infant mortality in patients without prenatal care ($p<0.01$). 6 from extreme prematurity, one 33 week infant and one fullterm. There was one death in group 2 and none in group 1.

CONCLUSIONS: Among women delivering outside the hospital, a history of no prenatal care identifies those at risk for adverse neonatal outcome. Despite similar socioeconomic risk factors for poor outcome in groups 2 and 3, women without prenatal care had significantly worse neonatal outcome in unplanned home deliveries. Programs designed to reduce perinatal mortality need to target women with a history of poor prenatal care and home deliveries.

201 NATURAL HISTORY OF SUBSEQUENT PREGNANCIES IN WOMEN WITH PRIOR FETAL DEATH (FD). *Luikenaar RA*[x], Lee RM[x], Branch DW, Scott JR[x], Porter TF, Silver RM. Dept OB/GYN, Univ of Utah, SLC, UT.

OBJECTIVE: Patients with recurrent first trimester spontaneous abortion have been the subject of intensive investigation. However, relatively little is known about mid-trimester pregnancy loss. Thus, it is difficult for clinicians to optimally counsel, evaluate, and manage women with previous unexplained fetal death. Our objectives were to ascertain the natural history of subsequent pregnancies in patients with prior fetal death and to identify risk factors that may influence ensuing pregnancy outcome.

METHODS: Subjects were identified from patients referred for evaluation of fetal death and having at least one subsequent pregnancy between 1986 and 1997. Medical and obstetric histories were obtained by telephone interview and the medical records. All patients were tested for lupus anticoagulant and anticardiolipin antibodies and those with positive tests were excluded. Logistic regression models were used to identify characteristics predictive of subsequent pregnancy outcome.

RESULTS: 205 subjects met inclusion criteria. Up through the time of their first fetal death, these women had 604 pregnancies resulting in 210 (35%) live births, 189 (31%) spontaneous abortions, and 205 (34%) fetal deaths. The 205 pregnancies immediately following the first fetal death resulted in 53 (25%) live births, 85 (41%) spontaneous abortions, and 62 (30%) recurrent fetal deaths. In total, these women had 750 subsequent pregnancies resulting in 212 (29%) live births, 313 (42%) spontaneous abortions, and 217 (28%) fetal deaths. Over two-thirds of fetal deaths occurred during the second trimester with the mode between 13 to 15 weeks. Surprisingly, maternal age, number of pregnancy losses, timing of fetal death, and prior live birth were all unrelated to subsequent pregnancy outcome. A cause of fetal death was identified in only 20 (9%) subsequent fetal deaths.

CONCLUSIONS: Women with prior fetal death are at high risk for subsequent pregnancy loss with less than 30% of pregnancies resulting in surviving infants. Traditional risk factors for recurrent spontaneous abortion do not appear to influence pregnancy outcome in this group of patients. These data underscore the need for additional research into the pathophysiology and prevention of recurrent fetal death.

202 MODIFIABLE OBSTETRIC CARE FACTORS ASSOCIATED WITH INFANT MORTALITY. *C. Kline*, D. H. Watts, J. Krieger. Dept. Ob/Gyn and Medicine, Univ. of WA and Seattle-King County Dept. of Public Health (DPH), Seattle WA.

OBJECTIVE: To identify modifiable obstetric care factors contributing to infant mortality (IM).

STUDY DESIGN: Retrospective review of infant deaths between 1992-94 using birth and death certificates, obstetric, pediatric and autopsy records, maternal interviews and case-by-case review by physicians, epidemiologists and DPH staff. All live born infants who were born and died before one year in King County were eligible.

RESULTS: Of 262 eligible deaths, 247 (94%) were reviewed. IM declined by 30% between 1988 and 1994 with a concomitant reduction in maternal smoking (21% to 13%), alcohol use (7% to 4%) and inadequate prenatal care (PNC) (14% to 10%). Causes of death (COD) included perinatal conditions (e.g. asphyxia and infection) (24%), congenital anomalies (23%), Sudden Infant Death Syndrome (SIDS) (23%), and prematurity (13%).

Modifiable obstetric care factors which significantly contributed to infant death were identified in 16% (39/247) of cases. Cases often had multiple factors identified including inadequacies in intrapartum fetal assessment (n=15), pediatric care at delivery (n=15), labor managment (n=11) maternal transport (n=6) and genetic counseling (n=3).

CONCLUSIONS: Modifiable obstetric care factors which contributed to infant mortality were identified in only 16% of cases. Inappropriate obstetric and pediatric management on labor and delivery, delayed maternal transport, and inadequate genetic counseling were among the factors identified. Regional and insitutional quality assurance programs should address these factors.

203 RACE AND NEONATAL ILLNESS SEVERITY. *S. Berman*, D. K. Richardson[x], A. Cohen[x], E. Lieberman[x]. Dept. Ob/Gyn, Brigham and Women's Hospital, Boston, MA.

OBJECTIVE: To determine whether there are racial differences in a neonatal illness severity score independent of gestational age.

STUDY DESIGN: The study population consisted of all singleton infants with gestational ages less than 34 weeks admitted to the NICU at the Brigham and Women's Hospital between December 1994 and November 1995. Maternal and neonatal data were obtained by chart review. Illness severity was measured using a neonatal severity of illness score, the Score for Neonatal Acute Physiology (SNAP score). SNAP uses routine vital signs and laboratory tests to score the worst physiologic derangements in each organ system in the first 24 hours of life. It is a direct measure of neonatal illness severity with scores ranging from 0 (healthy) to 42 (most severely ill). Student t tests, x^2 analysis and Fisher's exact tests were used to assess statistical significance. Linear and logistic regression analyses were used to examine associations while controlling for confounding factors.

RESULTS: There were 129 (79%) Caucasians and 36 (22%) African-Americans included in the analysis. Caucasian newborns had significantly higher mean SNAP scores than African-American newborns (8.8 vs. 6.3, $p < 0.05$). Compared to African-American newborns, Caucasian newborns were more than twice as likely to have a SNAP score > 10 (33% vs. 14%, $p < 0.05$). In a linear regression analysis controlling for gestational age, birth weight, preterm premature rupture of membranes, preterm labor, preeclampsia, maternal fever ≥ 100.4, route of delivery and other maternal and fetal factors, African-American newborns were predicted to have a SNAP score that was on average 3.0 points lower than Caucasian newborns ($p = 0.005$). In a logistic regression controlling for the confounders listed above, African-American newborns were only 14% as likely to have a SNAP score > 10 when compared to Caucasian newborns (OR 0.14, 95% CI 0.04 to 0.51).

CONCLUSIONS: The higher SNAP scores we noted among Caucasian newborns indicates that at any gestational age Caucasian newborns were more ill on admission to the NICU than African-American newborns. The SNAP score is a quantitative measure of neonatal outcome that may also be a useful tool to evaluate obstetric practices.

204 PREGNANCY OUTCOME IN PATIENTS TREATED FOR MALIGNANT OVARIAN GERM CELL TUMORS (MOGCT). M.G. Cantú[x], *A. Locatelli*[x], C. Bonazzi[x], P. Vergani[x], C. Mangioni[x], F. Pasta[x]. Department of Ob/Gyn, University of Milan, ISBM San Gerardo, Monza, Italy.

OBJECTIVE: To evaluate the reproductive outcome of patients with MOGCT treated with fertility-sparing surgery (FSS).

STUDY DESIGN: Between 1/82 and 12/96, 169 consecutive patients with MOGCT were referred or treated at our Institution, including 70 cases of dysgerminoma, 28 of endodermal sinus tumor, 24 of mixed germ-cell tumors, and 47 of immature teratoma. 98 cases had tumors in stage I, 14 in stage II, 46 in stage III, 5 in stage IV, and 6 had recurrences. FSS was performed in 138/169 (82%) cases.

RESULTS: Median maternal age was 21 years (range 8-41). Chemotherapy (CH) was administered to 73/138 (53%) women with advanced or high risk disease. The survival rate was 98% (135/138) at a median follow-up of 67 months (range 8-138). Of surviving patients, 7 (5%) were infertile (5 for demolitive surgery during follow-up, 1 for early menopause, and 1 for primary amenorrhea). Of the 128 potentially fertile patients, 32 attempted conception (20 treated with CH, 12 untreated) for a total of 55 conceptions.

Pregnancy outcome	Treated with CH (n=41)	Untreated (n=14)	P value
Term pregnancy	26 (68%)	12 (86%)	0.1
Voluntary termination	4 (10%)	2 (14%)	0.5
Miscarriage	9 (21%)	0	0.05
Malformations	3/32 (9%)	1/14 (7%)	0.6

CONCLUSIONS: In patients with MOGCT desirous of fertility, conservative treatment can be a viable approach. While the overall miscarriage rate in the study population (16%) is not different from that of the general population, the high rate of major malformations (4/46 or 9%) requires further investigation.

205 EFFECTS OF HEPATITIS C VIRUS INFECTION ON PREGNANCY OUTCOME. P. Bellini[x], N. Roncaglia[x], *A. Locatelli*[x], A. Arreghini[x]. L. Patanè[x], A. Ghidini. Dpt. of Ob/Gyn, University of Milan, ISBM San Gerardo, Monza, Italy; and Georgetown University Medical Center, Washington, D.C.

OBJECTIVE: The aim of this study was to establish the effects of hepatitis C virus (HCV) infection on maternal and perinatal outcomes.

STUDY DESIGN: From January 1992 to December 1997 all pregnant women underwent serologic screening for HCV (enzyme-linked immunosorbent assay confirmed by recombinant immunoblot assay). Positive cases were tested by polymerase chain reaction for HCV-RNA. HBsAg was tested in all women, HIV in high risk population. Monthly serum liver function tests were evaluated in HCV positive patients. Statistical analysis included chi-square and t-test, with significance at $p<0.05$, or 95% confidence interval (CI) not inclusive of the unity.

RESULTS: 73/16,271 pregnant women (0.4%) were HCV positive. Median maternal age was 39 years (range 34-42). No woman was co-infected with HIV. HCV-RNA was positive in 44/54 tested patients (81%). No significant differences were present between mean ± SD levels before vs during pregnancy of SGOT (p=0.4), SGPT (p=0.9), or GGT (p=0.7), while bilirubin increased significantly during pregnancy (0.4±0.1 vs 0.6±0.6 mg/dl, $p<0.05$). The incidence of intrahepatic cholestasis of pregnancy [15/73 (20%) vs 145/16271 (0.9%), relative risk (RR) 23.2, 95% CI 13.5 - 37.1] and the rate of preterm delivery at <37 wks [16/73 (22%) vs 1464/16271 (9%), RR 2.4, 95% CI 1.5 - 3.7] were significant higher than in the general pregnant population. Median gestational age at delivery (39 wks), birth weight (3110 g), and cesarean section rate (14%) among HCV positive women were similar to those of the general pregnant population. No perinatal mortality or major morbidity occurred in the 73 infants of HCV positive women, 62% of which breast-fed. At the 24-months follow-up, vertical transmission had occurred in 3/44 HCV-RNA positive vs 0/10 HCV RNA negative patients (p=0.9).

CONCLUSIONS : HCV is associated with a 23-fold increase in the rate of intrahepatic cholestasis of pregnancy, and a greater than 2-fold increase in the preterm delivery rate at <37 weeks.

206 THREE MODELS FOR DEFINING THIRD TRIMESTER FETAL WEIGHT GAIN. *AG Fry*, IM Bernstein and G Badger[X]. Depts. of Ob/Gyn and Med Biostatistics, Univ. of VT Burlington, VT.

OBJECTIVE: To compare three models of fetal growth to determine the normal rate (per week) of fetal weight gain during the third trimester of pregnancy.

METHODS: We examined three models of fetal growth to determine the weekly accretion of fetal mass during the third trimester of pregnancy. The models included: 1) Longitudinal: Assessment of fetal growth in 50 non-smoking, normal weight women without medical complications of pregnancy. These women had ultrasound estimates of fetal weight at 3-4 week intervals using abdominal circumference, head circumference and femur length. 2) Cross-sectional: Estimates of fetal weight derived from 2,018 ultrasound examinations in singleton, non-anomalous fetuses.

3) Cross-sectional: Birth weights obtained from 9,553 live, singleton, non-anomalous births. All data was acquired between 24 and 43 weeks of gestation. In the longitudinal data set, paired sequential ultrasound estimates of fetal weight were used to calculate an average weekly weight gain. For the cross-sectional data sets, weekly estimates of the mean fetal weight and mean live birth weight were used to determine average weekly weight gain. $P<0.05$ was accepted for significance

RESULTS: Weekly fetal weight gains were found to be significantly different at selected gestational ages using the three different models ($P<0.05$). Smoothed curves depicting fetal weight gain across gestational age were significantly different by pair-wise comparisons of all models ($P<0.05$). Surprisingly, among the cross-sectional observations, we identified significant weekly variations in the estimates of fetal growth suggestive of pulsatile growth occurring at specific gestational age windows.

CONCLUSIONS: Estimates of weekly fetal weight gain in the third trimester of pregnancy vary by the model employed to define normal fetal growth. Each model defines a distinct pattern of fetal weight gain in the third trimester. Cross-sectional models used to estimate fetal weight gain suggest that fetal weight gain is pulsatile.

207 WORK & PREGNANCY: ROLE OF FATIGUE ON ANTENATAL HOSPITALIZATIONS *B Luke*, M Avni[x], L Min[x]. Department of Obstetrics & Gynecology, University of Michigan Medical School, Ann Arbor, MI

OBJECTIVE: To evaluate factors at home and work associated with antenatal hospitalizations among employed women.

STUDY DESIGN: This is a prospective study of 215 women who were employed during pregnancy. Each woman was interviewed four times (at about 16 wks, 24 wks, 30 wks, and by 12 wks postpartum) about home and work factors, fatigue, and hospitalizations (including ER and labor and delivery visits). A ***work score*** was formulated from four factors (standing >4 hrs/day, physical exertion, mental stress, and environment), totalling 0-4 from reported data at each of the three antenatal interviews. A ***home score*** was formulated from four factors (laundry, housework, grocery shopping, and washer/dryer in basement), totalling 0-4 from reported data at each of the three antenatal interviews. The risk of any hospitalizations was modeled using logistic regression.

RESULTS: The study population was 88% white, 90% were college-educated, 82% had household incomes >$40,000/yr, and 90% worked until delivery. By 24 wks, 18% had decreased and 17% had increased their work hrs; by 30 wks, 23% had decreased and 16% had increased their work hrs. Analyses were conducted based on women who worked at least 20 hr/wk until delivery (N=192). With advancing gestation, the ***risk of hospitalizations increased with fatigue*** (odds ratio, OR, 0.68, 95% CI, 0.44, 1.07 at 16 wks; 1.19, 95% CI, 0.76, 1.86 at 24 wks; 2.20, 95% CI 1.36, 3.57 at 30 wks), ***with work score*** (OR, 1.23, 95% CI, 0.83, 1.81 at 16 wk and 1.86, 95% CI, 1.29, 2.68 at 24 wk), and ***with combined work+home scores*** (OR, 1.09, 95% CI, 0.80, 1.47 at 16 wk and 1.82, 95% CI, 1.33, 2.50 at 24 wk).

CONCLUSIONS: Fatigue during pregnancy, from both home and work factors, contributes significantly to antenatal morbidity (ER, labor and delivery visits, or hospitalizations) among employed women.

208 DOES ELEVATED hCG HAVE CLINICAL UTILITY AS A PREDICTOR OF ADVERSE PREGNANCY OUTCOME? *D. Walton*, C. Norem[x], E. Schoen[x], C. Colby[x]. Kaiser Permanente Northern California, Oakland CA

OBJECTIVE: To define the risk of adverse pregnancy outcomes relative to a range of hCG values in a large HMO population for which outcome information is readily available from a computerized database.

STUDY DESIGN: Second trimester maternal serum hCG values were reviewed for 31,182 singleton pregnancies. Patients with preexisting risk factors were excluded from analysis. Pregnancy outcomes were analyzed for the following: stillbirth rate, intrauterine growth restriction (IUGR), pregnancy induced hypertension (PIH), preterm birth (PB), preterm membrane rupture (PROM) and placental complications (PC).

RESULTS: Outcomes were available in 96% of patients. 2602 had an hCG > 2.0. There was no association between elevated hCG and IUGR or PROM. There was a linear association between hCG and stillbirth. However, a relative risk of 2 was not reached until an hCG of 2.86 MOM. Non caucasian race was 2 times better than the highest hCG level for predicting stillbirth. For the other complications the odds ratios were as follows: PB = 1.19, PIH = 1.34, PC = 1.48.

CONCLUSIONS: In this study, the largest to date, elevated hCG was not correlated with IUGR. Even at markedly elevated hCG the relative risk of stillbirth did not exceed 2.5. It remains to be determined at what hCG level intervention should be initiated.

209 KNOWLEDGE AND PRECONCEPTIONAL USE OF FOLIC ACID IN PATIENTS PRESENTING FOR HIGH RISK PREGNANCY CARE. *J. Perlow.* Phoenix Perinatal Associates, Phoenix and Yuma, AZ

OBJECTIVE: To survey patients presenting for high-risk pregnancy care as to their preconceptional use of folic acid and to evaluate their understanding of it's benefits in reducing the occurrence of neural tube defects (NTDs).

STUDY DESIGN: During a 6 month period, 315 patients presenting for office based high-risk pregnancy care were provided a survey (in either Spanish [N=132] or English [N=183]), evaluating their knowledge and use of folic acid. To avoid information bias, only patients responding positively to any association between the prevention of birth defects and vitamin use were provided a more detailed survey to evaluate specific aspects of understanding. Results were stratified as to educational level and differences between Spanish and English speaking groups.

RESULTS: Disappointingly, only 12.6% of those surveyed knew of any association between folic acid and the prevention of NTDs, significantly less than the 50% recently reported by the March of Dimes. Among patients aware of a link between vitamins and the prevention of birth defects only 16.7% correctly identified folic acid as necessary in this process. A mere 1.2% of patients with less than 4 years of high school education were taking vitamin supplements preconceptionally, as compared to 46% of those with any education beyond high school. 68% of patients aware of an association between vitamins and the prevention of birth defects also knew beginning preconceptionally was important, although overall only 14.6% actually took vitamins preconceptionally. Spanish speaking patients were significantly less likely to possess knowledge regarding the prevention of NTDs with folic acid when compared to English speaking patients (8% vs 92%: $p < 0.05$)

CONCLUSIONS: In our patient population, there is a critical need for information on the benefits of preconceptional folic acid in preventing NTDs. This need is even greater among Spanish speaking patients and those with lesser degrees of education. Educational efforts in the community have been initiated on the basis of this work.

210 OUTCOME BASED ANALYSIS OF EARLY POSTPARTUM DISCHARGE AT A UNIVERSITY HOSPITAL. *R Bossert* [x], J Stanley, F Coleman, C Mirabile, W Rayburn. Dept Obstet Gynecol, Univ Oklahoma, Okla City, OK

OBJECTIVE: To determine whether institution of an early hospital discharge policy was safe and effective in reducing hospital stay

STUDY DESIGN: Early discharge was defined as discharge from the hospital either on the first day after vaginal delivery or on the second day after delivery by cesarean section. A "stay over mom" policy was also instituted to allow a mother to remain in the hospital overnight after discharge. This prospective study was divided into three consecutive three-month periods: 1) routine care (n = 576), 2) early discharge (n = 622), and 3) early discharge with "stay over mom" (n = 574). Length of hospital stay and any readmissions were reviewed.

RESULTS: As expected, early hospital discharge was more frequent when policies for such were instituted (routine care: 66%; early discharge: 83%; early discharge with "stay over mom": 95 %; $p < .0001$). Primary reasons for delay in hospital discharge were postpartum fever, preeclampsia, anemia, and wound complications. The incidences of readmissions did not change (0.7%, 0.8 %, and 1.0 % consecutively; $p = 0.52$). Cases requiring readmission were most often attributable to endometritis diagnosed more than 48 hours after discharge.

CONCLUSION: A policy of early postpartum discharge is both plausible and safe in a high risk obstetric university setting. Reduced hospital stay is not associated with increased morbidity.

211 A RANDOMIZED CONTROLLED TRIAL OF MISOPROSTOL VERSUS OXYTOCIN IN PREVENTING POSTPARTUM BLOOD LOSS. *S. Daly*, K. Andolina[x], J.E. Tolosa, N. Roberts, R. Wapner. Divs of MFM, Depts of Ob/Gyn, Jefferson Medical College of TJU, Phila., PA and Lankenau Hospital, Wynnewood, PA.

OBJECTIVE: To determine if misoprostol is more effective than oxytocin in preventing postpartum hemorrhage and to establish objective estimates of postpartum blood loss.

STUDY DESIGN: This was a doubled blinded randomized controlled trial which compared 400μg of misoprostol taken orally at the time of delivery with 20iu of oxytocin given as an infusion following delivery of the placenta. The primary outcome measure was postpartum hemorrhage (blood loss >500 mls during the first 24 hours). Blood loss was objectively measured by weighing the blood loss at delivery and for the first 24 hours after delivery. This has not been performed in previous studies. In order to ensure a double blinded design each participant received one placebo and one uterotonic agent. Pre and day 2 post delivery hemoglobin (Hb) was also measured.

RESULTS: 265 women consented to participate in the study. Thirty five did not receive study medications because the delivery was by forceps or cesarean section. 230 were randomized 115 to each group. Postpartum hemorrhage occurred in 78 (51%) of the misoprostol group and 74 (48%) of the oxytocin group (NS). There were no significant differences in blood loss, rate of postpartum hemorrhage (>500ml or >1000ml) or the need for an additional uterotonic agent between the groups. The mean blood loss among all women at delivery was 439ml (391-487) and 882ml (811-953) in the first 24 hours post delivery. There was no difference in the Hb change between the two groups (p=0.85). There was a good correlation between the objective blood loss and the change in Hb (r=0.62).

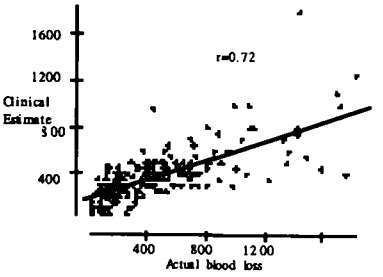
CONCLUSION: Misoprostol is not more effective than oxytocin in preventing postpartum hemorrhage but considering it's cost and ease of administration misoprostol may assume an expanded role in preventing postpartum blood loss. Blood loss during normal delivery may be greater than appreciated despite the administration of an oxytocic agent thus a new definition of excessive blood loss at delivery may be required.

212 OBJECTIVE MEASUREMENT OF BLOOD LOSS AT DELIVERY: IS IT MORE THAN A GUESS? *K. Andolina*[x], S. Daly, N. Roberts, J. Tolosa, R. Wapner. Divs of MFM, Depts of Ob/Gyn, Jefferson Medical College of TJU, Phila., PA and Lankenau Hospital, Wynnewood, PA.

OBJECTIVE: Blood loss at delivery is not routinely measured in clinical practice nor has it been objectively measured in clinical trials. Our objective was to determine if a clinical estimate of blood loss at delivery is accurate and clinically worthwhile.

STUDY DESIGN: This study was performed in conjunction with a double blinded randomized controlled trial which compared misoprostol and oxytocin in preventing postpartum bleeding. All women received one uterotonic agent. Following delivery of the baby a special drape was placed under the women and all blood loss was objectively measured by weight. The accoucheur was then asked to clinically estimate the blood loss. Feedback was provided as to the exact blood loss.

RESULTS: Two hundred and thirty women completed the study. The mean blood loss at delivery was 439ml (391487). The mean estimated blood loss was 364ml (335-393) [p=0.0001]. Overall, there was a good correlation between the clinical estimate and actual blood loss. However, among 19 women (8.3%) who lost >1000ml, 18 (95%) were clinically underestimated, 14 (74%) were underestimated by greater than 500ml. The accuracy of clinical estimation did not change over time.



CONCLUSION: Clinical estimation of blood loss results in an under appreciation of blood loss at delivery. This is particularly evident when the blood loss exceeds 1000ml.

213 CHORIOANGIOMA OF THE PLACENTA: PREVALENCE AND CLINICAL SIGNIFICANCE *A.Bashiri*, O. Erez, D. Dukler, M. Katz, M. Mazor. Dept. Ob/Gyn, Soroka Medical Center, Ben-Gurion University of the Negev, Beer-Sheva, Israel.

OBJECTIVE: To describe pregnancy outcome in women with chorioangioma of the placenta diagnosed both prenatally and postnatally.

STUDY DESIGN: During the period between January 1986 and December 1997, 12 women with chorioangioma of the placenta delivered in our institution. Maternal age and parity were matched with a control group that included 60 women out of 114,624 deliveries during the study period. We compared pregnancy outcome between women with chorioangioma of the placenta and the control group. Statistical methods included X2, Fisher exact test and student t-test.

RESULTS: The prevalence of chorioangioma of the placenta was 1:10000 deliveries (12/114,624). Nine cases (75%) were diagnosed postnatally. The mean maternal age of the patients in the study group was 27.5 ± 4 years (range 22-34 years). Higher rate of preterm delivery was among the women with chorioangioma 66% vs. 10 %, p<0.001 with OR 17.33. Pregnancy outcome:

Variables	Chorioangioma N=12	Control N=60	P value
Birthweight (Mean±SD)	2080 ± 849	2911 ± 779	0.0005
Gestational age (Mean±SD)	34 ± 4.8	38.8 ± 2.8	<0.0001
Multiple gestation	16.6%	0	0.026
Vaginal delivery	75%	88.3%	NS
Preeclampsia	8.3%	6.6%	NS
Hydramnion	16.6%	3.3%	NS
Abruption placenta	8.3%	0	NS
PROM	16.6%	16.6%	NS
Meconium	16.6%	15%	NS
Congenital anomalies	0	5%	NS
Perinatal mortality	16.6%	3.3%	NS

CONCLUSIONS: Chorioangioma of the placenta is associated with an increased risk of preterm delivery and lower birthweight.

214 NEUROLOGICAL MANIFESTATION DURING PREGNANCY IS ASSOCIATED WITH INHERITED THROMBOPHILIA. *M.J. Kupferminc*, F. Barlevi[x], M. Shenhav[x], A. Eldor[xa], A. Many, D. Pauzner, J.B. Lessing[x]. Dept. Ob/Gyn Lis Maternity Hospital, & [a]Dept. Hematology, Tel Aviv Sourasky Medical Center, The Sackler Faculaty of Medicine, Tel Aviv University, Israel.

OBJECTIVE: To determine whether neurological manifestations during pregnancy are associated with inherited thrombophilias.

STUDY DESIGN: 10 patients who had a neurological manifestation during pregnancy were investigated. Initial workup included computerized tomography of head, prothrombin time, partial thromboplastin time, fibrinogen levels, antinuclear factor, anticardiolipin antibodies and lupus anticoagulant, all of which were normal in each patients. Three patients also underwent magnetic resonance imaging which was normal. Thereafter, all patients were tested for Factor V $A^{506}\rightarrow G$ (FV Leiden), methylenetetrahydrofolate reductase (MTHFR) $C^{677}\rightarrow T$, prothrombin $G^{20210}\rightarrow A$ (Factor II20210), protein S (PS), protein C (PC) and antithrombin III (AT-III).

RESULTS: In 8 of 10 patients (80%) an inherited thrombophilia was found:

Neurological manifestation	Thrombophilia found
TIA	Factor II20210 +/-
TIA	AT-III and protein S deficiency
Anisocoria, nystagmus, fainting	FV Leiden +/-
Left facial loss of sensation	Factor II +/-
Severe Headache	FV Leiden +/-
Nistagmus, severe dizziness	FV Leiden +/-
Headache, left hemiparesis	Factor II +/- and FV Leiden +/-
rRight hemiparesis	FV Leiden +/-

+/-=, heterozygote; . TIA=, transient ischemic attack.

The patients were treated with S.C. low molecular weight (LMW) heparin, 40mg/day throughout pregnancy and the puerperium and showed complete resolution of their neurological manifestations.

CONCLUSIONS: Patients with a neurological manifestation during pregnancy should be tested for thrombophilias and treatment with LMW heparin may be considered for relief and prevention of thrombotic manifestations.

215 MANAGEMENT OF PLACENTAL ABRUPTION WITH FETAL DEATH. *DF Kimberlin*, J. Hauth, A. Goepfert, S. Cliver[x] Dept. of OB/GYN, Univ. of Alabama at Birmingham.

OBJECTIVE: To review maternal morbidity with a placental abruption and fetal death.

STUDY DESIGN: Seventy-two women had a placental abruption and fetal death at ≥20 weeks' gestation between 1983 and 1996. Our management includes the early use of oxytocin and amniotomy with anticipated vaginal delivery. Prompt intravascular volume replacement with packed red cells (PRBC) is based on maintaining a maternal hematocrit (HCT) of ≥ 30 volume% or urine output (UOP) of ≥ 30 ml/hr.

RESULTS: Fifty-nine women (82%) received 323 PRBC transfusions and 66 (92%) had a vaginal delivery. Thirty-five (49%) women had a fibrinogen <150 mg/dl and 24 (34%) <100 mg/dl. No women died. Of 6 who developed a creatinine (CR) ≥3 mg/dl, two required dialysis (CR 12.0 and 12.7) and 1 ICU care for pulmonary edema. Characteristics of women whose maximum CR was < 3 vs ≥ 3 mg/dl include:

	CR < 3 mg/dl	CR ≥3 mg/dl	P
Gestation (wks)	30.0	30.3	.89
Admit CR (mg/dl)	.9	1.5	.06
HCT (vol%)	30.6	29.5	.63
Nadir HCT (vol%)	24.4	22.7	.30
Platelet (K/mm^3)	114	48	.0003
Fibrinogen (mg/dl)	165	97	.13

Women with a CR ≥3 had: less UOP in the first 6 and 12 hours after admission (21 vs 82 and 34 vs 97 cc/hr, p=.0001). In the first 6 hrs., they received more crystalloid (CR ≥ 3 = 3.7 L vs CR < 3 = 1.9 L, p=.007) but fewer units of PRBCs despite more total units of PRBCs (8.8 vs 4.4). The abruption to delivery interval was similar in the two groups.

CONCLUSION: Anticipation of vaginal delivery, frequent HCT and UOP monitoring, and prompt maternal PRBC replacement was associated with transient morbidity in only 6 of 72 (8%) women with a placental abruption and fetal death.

216 RISK FACTORS FOR DOMESTIC VIOLENCE IN PREGNANCY. *DF Kimberlin*, JC Hauth, RL Goldenberg, SP Cliver[X], M DuBard[X],C Arnwine[X]. Dept. of OB/GYN, Univ. of Alabama at Birmingham.

OBJECTIVE: To determine risk factors associated with domestic violence in a population of pregnant women.

STUDY DESIGN: During a three year period (July 15, 1995 to July 15, 1998), the Abuse Assessment Screen (AAS) was incorporated into routine social service interviews for women receiving prenatal care in our system. The AAS is a validated screening tool which uses 5 directed questions to assess for 1) past or 2) recent (≤1 year) physical abuse, 3) sexual abuse, 4) physical abuse in the index pregnancy, and 5) fear of the partner.

RESULTS: We screened 7,336 women for domestic violence. Of these, 1,262 (17.2%) women reported past physical abuse, 599 (8.2%) recent physical abuse, 171 (2.3%) sexual abuse, and 308 (4.2%) physical abuse during the index pregnancy. Women with past abuse were older (24±6 years vs 22±5 years, p=.0001) and more often multiparous (64% vs 52%, p<0.001) compared to non-abused women. Women who reported either past physical abuse, recent physical abuse, sexual abuse, or abuse during the index pregnancy were more likely to have been: white (31% vs 16%, p<0.001), unemployed (73% vs 69%, p = .004), failed to complete high school (44% to 40%, p = .003), or to have used tobacco (39% vs 18%,p<0.001), alcohol (24% vs 14%, p<.001), or illicit drugs (21% vs 8%, p<.001). Marital status and GA at entry for prenatal care were similar between women who reported abuse and those who did not.

CONCLUSIONS: In our population of pregnant women, white race, unemployment, lack of a high school education, tobacco use, alcohol use, and illicit drug use were significant risk factors for domestic violence.

217 PRENATAL SUBSTANCE USE & DECREASED BIRTH WEIGHT: RELATIVE CONTRIBUTIONS OF EACH SUBSTANCE. *J.Janisse[x]*, R.Sokol, S.Martier[x], J.Ager[x]. Dept. Ob/Gyn and Center for Health Care Effectiveness Research, Wayne State University, Detroit, MI.

OBJECTIVE: To clearly define the impact of substance abuse on decreased birth weight on a sample of gravidas using a causal model which adjusts aggressively for maternal characteristics to isolate the impact of each.

STUDY DESIGN: Live born infants of 3,363 African-American mothers enrolled in a large prospective study of alcohol & other drug use in pregnancy over 11 years were examined. The sample included only women with an U/S supported estimate of gestational age. Path analysis was performed on the first of a planned split-halves sample of 1413 mothers. Maternal characteristics were maternal age, pre-pregnancy weight, parity, and socio-economic status. Infant gender was also included. The independent variables were drinking frequency as measured by proportion drinking days across pregnancy, smoking and cocaine use. Dependent variables were gestational duration, fetal growth and birth weight.

RESULTS: All three substances, i.e. alcohol, smoking and cocaine use, reduced birth weight through decreased gestational duration. Only alcohol and smoking reduced fetal growth.

Reduction in grams by substance use at the 95th percentile

	Gestational Duration	Growth	Birth weight
Alcohol	-97	-90	-187
Smoking	-58	-38	-96
Cocaine	-39	—	-39

CONCLUSION: This study perhaps for the first time appropriately apportions reduced birth weight by substance and cause (decreased gestational duration and growth restriction). Controlled for maternal characteristics and substance exposure the effect size of alcohol is nearly two times that of smoking and five times that of cocaine. These findings might inform a more rational approach to low birth weight reduction via reduced substance abuse.

218 A COMPARISON OF SCREENING METHODS FOR SELF-REPORTED DOMESTIC ABUSE BY PREGNANT WOMEN. *J Canterino*, LG VanHorn[x], JT Harrigan, CV Ananth[x], AM Vintzileos. UMDNJ-Robert Wood Johnson Medical School/St. Peter's Medical Center, New Brunswick, NJ and Jersey Shore Medical Center, Meridian Health System, Neptune, NJ.

OBJECTIVES: To compare a standardized self completed domestic abuse questionnaire to a directed interview for the identification of domestic abuse in pregnant patients.

STUDY DESIGN: All patients receiving their first prenatal visit between March and September 1997 were assessed for self-reported domestic abuse using a standardized domestic abuse questionnaire (ACOG Technical Bulletin #209). This was followed by a directed interview which involved verbal review of the standardized domestic abuse questionnaire. Self-reported domestic abuse was defined as any positive response to the domestic abuse questionnaire or the directed interview. The number of patients with a positive response to the standardized questionnaire, the directed interview, or both, were recorded. The two techniques were compared by the McNemar test. The group demographics including patient age, parity, recreational substance use and tobacco use were evaluated.

RESULTS: Among the 224 patients evaluated, the mean ± SD patient age was 24.4±6.4 years, 56% of the patients were parous, 56% reported recreational substance use, and 51% reported tobacco use. A total of 36% (n=80) of the patients reported domestic abuse by either method. A positive response was detected by the domestic abuse questionnaire in 41% (n=33) of the patients, by the directed interview in 15% (n=12) of the patients and by both the questionnaire and the directed interview in 44% (n=35) of the patients. The standardized domestic abuse questionnaire identified 85% (n=68) compared with 59% (n=47) by the directed interview (P=0.03). The use of the directed interview in parallel identified an additional 15% (n=12) of patients with domestic abuse.

CONCLUSION: A standardized domestic abuse questionnaire is superior to a directed interview in identifying self-reported domestic abuse in pregnancy. Utilizing both methods in parallel further increases the number of patients identified. The dramatic findings from this study favor the inclusion of these methods in routine prenatal care.

219 A PROSPECTIVE EVALUATION OF A DOMESTIC ABUSE SCREENING TOOL. *R. Duck[x]*, B.A. Meyer. Dept. Ob/Gyn, SUNY at Stony Brook, NY.

OBJECTIVE: Routine history and physical exams are extremely poor at eliciting a history of domestic abuse, particularly emotional abuse. The purpose of our study is to determine if administration of a screening questionnaire to new patients will improve the identification of patients experiencing domestic abuse.

METHODS: New patients presenting to the outpatient clinic at University Medical Center were considered for the study. The Women's Abuse Screening Tool (WAST), a seven question abuse screening tool, was administered and collected prior to patient encounters with resident physicians and compared to physician elicited history. Exclusion criteria were language barrier and lack of intimate relationship.

RESULTS: Mean age was 33 +/-2.5 with mean gravity and parity of 2.7 +/-1.2 and 1.6 +/-0.8, respectively. Racial composition was 2% Asian, 11% African American, 11% Hispanic and 75% white; 51% were married. Twenty-one percent of subjects were in a relationship of less than one year in duration. Another 21% were between one and five years, with 57% of relationships lasting five years or more. The WAST was significantly more successful than standard history and physical at eliciting a history of emotional or psychological abuse, 2/70 vs. 18/70 (Odds Ratio 11.77 [2.46<OR<77.0] p<.00001). Patients identified by the WAST as experiencing abuse were younger (31.3 +/-2.6 vs. 34.1 +/-2.5, p=0.10), had more pregnancies and children (3.3 +/-1.3 vs. 2.4 +/-1.2 and 2.2 +/-1.1 vs. 1.3 +/-.8, p=0.08 and 0.06 respectively), although these trends did not reach statistical significance. There were no significant differences between abused and non-abused subjects in marital status or race.

CONCLUSION: The WAST is significantly more effective as a screen for domestic abuse than standard history and physical.

220 VIOLENCE AGAINST WOMEN: ANTEPARTUM COMPLICATIONS *AW Miller* [x], RC Bay [x], LR Chambliss, DV Coonrod [x], Dept Ob/Gyn, Maricopa Medical Center, Phoenix, Az

OBJECTIVE: Violence against women causes a myriad of complications. We investigated the relationship between antepartum complications and violence (history of battering or sexual assault within the last year or history of incest).

STUDY DESIGN: A chart review and brief survey were conducted on the women delivering at Maricopa Medical Center (the county hospital serving Phoenix) over an 8-month period by the nursing staff. Data collected included: acculturation, history of abuse, prenatal care, STD history, demographic information, and outcomes related to antepartum complications. Frequency of risk factors and outcomes were compared by calculating relative risks and 95% confidence intervals. We evaluated potential confounders using logistic regression. Since the two largest ethnic groups, Hispanics (N=1,025) and White non-Hispanics (N=148) represented 92% of deliveries, data analysis was restricted to these groups.

RESULTS: Violence occurred in 12.1% of the sample, with 6.1% suffering domestic violence, 1.5% sexual assault, and 7.7% incest. A history of at least one of these was associated with third trimester bleeding (TTB) (RR 5.5, 95% CI 1.9-15.7) preterm labor (PTL) (RR 2.3, 95% CI 1.2-4.6) preterm delivery (PTD) (RR 1.7, 95% CI 1.1-2.5). No significant association was seen with hyperemesis, preeclampsia or diabetes. Violence was also associated with tobacco abuse (RR 4.6, 95% CI 3.3-6.4), alcohol abuse (RR 4.1, 95% CI 2.3-7.6) and illicit drug abuse (RR 5.7, 95% CI 3.8-8.5). Since substance abuse has previously been associated with TTB, PTL, and PTD, we calculated adjusted RR's to control for these factors. In each case the RR estimate was attenuated: TTB (RR 2.1, 95% CI 0.6-7.9), PTL (RR 1.8, 95% CI 0.8-4.1), and PTD (RR 1.5, 95% CI 0.8-2.6).

CONCLUSION: Significant associations were noted between violence against women and the antepartum complications TTB, PTL, and PTD. When we controlled for substance abuse, the relative risks decreased. Two possible explanations for these findings may be that substance abuse causes both violence and these outcomes, or an additional variable, e.g. poverty, is associated with substance abuse, violence and these outcomes. We suspect that both may be operational. The relative contribution will need to be investigated with larger samples in a prospective study designed to track causal precedence.

221 COCAINE ABUSE AND SEVERITY OF PREECLAMPSIA. *S. Tripp*[x], J.U. Hibbard. Dept. Ob/Gyn, Univ. of Chicago, Chicago, IL.

OBJECTIVE: We have noted many severely ill preeclamptics (PRE) and eclamptics (ECL) are also cocaine abusers. We wanted to test the hypothesis that cocaine abuse is associated with more severe forms of PRE and development of ECL.

STUDY DESIGN: Case-control: Cases defined as all severe PRE and ECL patients, 1987 to 1996, stringently meeting ACOG criteria for disease and also with urine toxicology (tox); control group of mild PRE randomly chosen from the same years, also defined by ACOG criteria and tox. Charts were reviewed for data on disease criteria, lab values, demographics, outcomes, cocaine abuse and tox results. Potentially confounding factors evaluated were age, race, smoking, and socioeconomic status. A power calculation determined that for alpha = 0.05, beta = 0.20 to achieve 80% power, a control group in a ratio of 4:1 was needed for an estimated 40 cases. The association between cocaine and severe PRE/ECL as well as confounding factors were determined using Chi-square and Fisher's exact with Mantel-Haenszel stratification method; student's t-test. Odds ratios (OR) with 95% confidence intervals were calculated, $p<0.05$ significant.

RESULTS: 71 cases (54 severe PRE, 17 ECL) were identified from 129 charts and compared to 117 controls selected from 253 mild PRE. There were no differences between cases and controls with regard to age, race, parity, medical disorders, smoking, alcohol, or other drug use. Positive cocaine tox was noted in 11.3% (8/71) cases compared to 2.6% (3/117) controls. Cocaine was associated with more severe PRE or ECL, OR = 4.83[1.10-28.90], p=0.022. Cases delivered significantly younger (32.0 ± 4.5 vs 37.5 ± 3.4 wks), smaller infants (1062 ± 805 vs 2804 ± 824 gms), with lower Apgars at 1 and 5 min., and more cesareans. Smoking and socioeconomic status were probable confounders, but race and age were not.

CONCLUSION: There is an association between cocaine exposure and development of more severe PRE and ECL. Patients should be counseled that use of cocaine may lead to severe disease and serious neonatal morbidity.

222 RELATION OF CHANGES IN MATERNAL DRINKING TO CHANGES IN INFANT OUTCOME: A LONGITUDINAL ANALYSIS ACROSS THREE PREGNANCIES *J.Ager**, J. Janisse*, R. Sokol, S. Martier*. Center for Healthcare Effectiveness Research and Dept. Ob/Gyn, Wayne State University, Detroit, MI.

OBJECTIVE: The relation of maternal alcohol use to infant outcome has been studied primarily in cross-sectional samples. To determine if *changes* in drinking over pregnancies lead to predictable changes in infant outcomes requires a longitudinal analysis, which is the focus of the present study.

STUDY DESIGN: Of 28,779 mothers interviewed as part of a large prospective study on alcohol consumption in an inner-city clinic over 11 years, 666 mothers had at least 3 pregnancies with similar alcohol and drug histories taken reliably by screeners trained to elicit sensitive information. Two summary measures of maternal alcohol consumption were obtained at each pregnancy: absolute alcohol per day at conception (AAD_0) and absolute alcohol per day in the two-weeks prior to a woman's first antenatal visit (AAD_1). Only women with drinking in at least one pregnancy were included in the analyses (N = 245 for AAD_0, N = 101 for AAD_1). The outcome birth weight (RBW) was residualized within each pregnancy for maternal pre-pregnancy weight, father's height, cigarettes per day and gender. Next, AAD_0 and AAD_1 were correlated with RBW over the three pregnancies for each woman. Finally, these correlations were averaged using the Fisher r to z transformation, tested for significance and compared for women with mean pregnancy age above and below 30.

RESULTS: The average intra-patient correlations for AAD_0 and AAD_1 were -.17 and -.03 respectively. Using a one-tailed test only the AAD_0 correlation was significant ($t = -1.73$, $p < .05$). The average intra-patient correlations based on age group were -.12 and -.64 for AAD_0 and .04 and -.32 for AAD_1 for the younger and older groups respectively. Using a one-tailed test the difference for AAD_0 across age groups was significant ($t = 1.73$, $p < .05$).

CONCLUSION: Using each woman as her own control we find that changes in drinking has a moderate linear relation to changes in birth weight and that this relationship is greater for women in their thirties. This result provides more evidence that women who may have been drinking at risk levels in earlier pregnancies may improve infant outcomes by sufficiently reducing or eliminating drinking in subsequent pregnancies and that this improvement may be greatest for women over 30.

223 METHAMPHETAMINE USE DURING PREGNANCY INCREASES THE RISK OF ADVERSE MATERNAL AND NEONATAL OUTCOMES *N.M. Boe*, E. Eby-Wilkens[x], N. T. Field, H. L. Hedriana, W. M. Gilbert. Dept. Of Ob/Gyn, Univ. Of Calif. Davis, Sacramento, CA.

OBJECTIVE: To determine whether the use of methamphetamines during pregnancy increased the risk of maternal and neonatal complications.

STUDY DESIGN: Using successfully linked data from 1992 California maternal hospital discharges and birth certificates, a cohort of women who used methamphetamines during pregnancy was identified. Pregnancy outcome among these women (AMPH, n=774) was compared to that of women who did not use methamphetamines (CONTROL, n=562,799). Women with multiple gestations and those who smoked, used alcohol, cocaine or multiple drugs were excluded. Chi-square and relative risk were calculated for categorical variables; t-tests were used for continuous variables.

RESULTS: A significantly higher percentage of AMPH patients received no prenatal care as compared to controls (20.3% vs. 1.3%, p=0.001). Both gestational age at delivery and neonatal birthweight were lower in the AMPH group and the corresponding infant length of stay was significantly prolonged (4.0 vs. 2.3 days, p=0.0001). Maternal and neonatal complications were higher in the AMPH group.

Outcomes	Relative Risk	95% Confidence Interval
Placental abruption	6.69	(4.80 – 9.32)
Chorioamnionitis	1.81	(1.24 – 2.65)
PROM	2.12	(1.60 – 2.81)
Delivery < 36 weeks	3.98	(3.44 – 4.61)
TTN at > 36 weeks	2.35	(1.59 – 3.46)
RDS at > 36 weeks	3.27	(1.75 – 6.10)
Meconium aspiration	2.83	(1.79 – 4.49)
IVH	4.25	(1.50 – 12.06)
Neonatal death	5.95	(3.89 – 9.09)

CONCLUSION: Although the majority of the AMPH women delivered at term, their infants experienced significant morbidity typically seen only in more premature infants.

224 DOES COCAINE USE WORSEN PERINATAL OUTCOME IN PATIENTS WHO DO NOT RECEIVE PRENATAL CARE? *RL.Andres*, ER.Pschirrer[x] and MC.Day[x]. Dept of Ob/Gyn, Univ of Texas-Houston, Houston, Texas

OBJECTIVE: To evaluate possible differences in perinatal outcome among women without prenatal care based upon the presence or absence of cocaine dependence.

STUDY DESIGN: Patients delivering at a university-based tertiary center who had received no prenatal care were identified by a computerized search of medical records. These patients were divided into two groups based upon the results of their urine drug screen (negative UDS [NPC] n=182) and UDS positive for cocaine [COC] n=25). Patients receiving regular prenatal care served as the control group [CON](n=88). Patient's charts were reviewed for numerous outcome measures (preterm birth (PTB), birthweight (BW), etc.). The data were analyzed with ANOVA, Fisher's exact or chi-square test where appropriate. Data are presented as mean ± SD with a p value <0.05 considered significant.

RESULTS: The mean GA at birth was greater in the CON grp (38.8) than both the NPC grp (34.4) and COC grp (33.0)(p<.01). Similarly, the PTB rate was greater in both the NPC (44%) and the COC (52%) grp than CON (6.8%)

(p <.01). No differences were found between the NPC and COC grp with respect to PTB or GA at delivery. The BW was greater in the CON grp (3608 ± 124) than both the NPC (2812 ± 138) and COC (2459 ± 856 gms) patients. A trend toward a lower mean BW was seen in the COC grp when compared to the NPC grp. The incidence of low BW (<2500 gms) was greater in both the NPC (22%) and COC(40%) grps when compared to the CON (11%) pts. A trend toward a higher incidence of LBW was shown among the COC exposed patients.

CONCLUSIONS: Patients who do not receive prenatal care deliver infants of significantly lower BW and have a greater incidence of PTB and of LBW infants. Among patients with no prenatal care, the use of cocaine was not associated with an overt worsening of perinatal outcome, although a trend toward lower BW was evident among these infants.

225 THE NATURAL HISTORY OF TWIN-TWIN TRANSFUSION SYNDROME *V. Berghella*, M. Kaufmann[x]. Division of MFM, Department of Ob/Gyn, Jefferson Medical College of Thomas Jefferson University, Phila., PA.

OBJECTIVE: To determine the natural history of twin-twin transfusion syndrome (TTTS) pregnancies.

STUDY DESIGN: All cases of TTTS at our institution since 1991 and in a MEDLINE search since 1966 were retrospectively reviewed. The prenatal diagnosis of TTTS required the presence of monochorionic/diamniotic (MC/DA) placentation (absence of twin-peak sign, thin membrane, single placenta, and same gender), and of polyhydramnios (largest pocket >8cm) in one sac and oligohydramnios (largest pocket <2cm, or stuck twin) in the other. Upon diagnosis, all patients were counseled as to the availability, risks and benefits of serial amniocentesis, laser therapy, septostomy, umbilical cord ligation and other medical and surgical interventions.

RESULTS: Of 26 pregnancies identified at our institution with the above strict criteria for TTTS, 5 (19%) declined any intervention and were managed expectantly. The mean gestational age (GA) at presentation was 20.0 weeks (range 16-28), and at delivery 32.6 weeks (range 22-41). Five (100%) had velamentous or marginal cord insertions in the donor twin, and one in both twins. Pathological evaluation of chorionicity was available in 4 (80%) pregnancies, all confirmed as MC/DA. Four (40%) of the twins survived past the neonatal period, and are free of neurologic sequelae despite the death in-utero of their co-twin in 3 cases. From the literature, 38 fetuses with TTTS as defined above and managed expectantly were identified, of which 15 (39.5%) survived.

CONCLUSION: The survival of fetuses with strictly-defined TTTS managed expectantly is about 40%. Success of in-utero therapeutic intervention should be assessed by randomized studies, or at least compared to similar cases managed expectantly.

226 NO GENDER DIFFERENCE IN TWIN-TWIN TRANSFUSION SYNDROME *V. Berghella*, A. Silber[x]. Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology, Jefferson Medical College of Thomas Jefferson University, Phila., PA

OBJECTIVE: To evaluate a possible gender difference in twin-twin transfusion syndrome (TTTS) , recently reported to be more common in female (89%) than male (11%) fetuses (Nores et al. Gender differences in twin-twin transfusion syndrome. Obstet Gynecol 1997;90:580-2.).

STUDY DESIGN: All cases of TTTS at our institution between 1991-1998 were retrospectively reviewed. The diagnosis of TTTS required the presence of monochorionic/diamniotic (MC/DA) placentation (absence of twin-peak sign, thin membrane, single placenta, and same gender), and of polyhydramnios (largest pocket >8cm) in one sac and oligohydramnios (largest pocket <2cm, or stuck twin) in the other. Chorionicity was confirmed by placental pathology, and gender was analyzed prenatally and confirmed postnatally.

RESULTS: Thirty-three TTTS pregnancies were identified, of which 26 met the above strict criteria for TTTS. The mean gestational age (GA) at presentation was 19.1 weeks (range 15-28). Mean GA at delivery was 29.9 weeks (range 20-41). Of 16 cord insertions evaluated, 16 (100%) had velamentous or marginal cord insertions in at least one twin [15 (94%) in donor twin]. Pathological evaluation of chorionicity was available in 19 (73%) pregnancies; 18 (95%) were confirmed as monochorionic/diamniotic, one was dichorionic. Twelve (46%) of the TTTS twin pairs were female, and 14 (54%) were male.

CONCLUSION: There is no male or female preponderance in fetuses affected by twin-twin transfusion syndrome.

227 WHAT ARE THE ODDS AGAINST THE SECOND TWIN? *B.M.Rosenn*, for the NICHD MFMU Network, Bethesda MD

OBJECTIVE: To test the hypothesis that the second in a pair of twins (twin B) is at risk for worse perinatal outcome than the first twin (twin A).

METHODS: Perinatal outcomes were obtained on 611 twin pregnancies enrolled in 13 centers participating in the MFMU high-risk population Aspirin randomized trial for preeclampsia prevention who delivered at ≥24 weeks gestation. Statistical analysis was performed using McNemar's test and ordinal logistic regression.

RESULTS: Twin B had a higher risk of neonatal death, admission to the NICU, RDS, and a 5-minute Apgar score <7, and a lower risk of jaundice, but these differences did not attain statistical significance.There was also no difference after adjusting for gestational age or birthweight or after stratifying by mode of delivery. Twin B was more likely to have a 5-minute Apgar score <7 if delivered more than 15 minutes after twin A, but otherwise the time interval between deliveries had no adverse effect on outcome. The following table depicts outcome by presentation:

	Composite morbidity*	NICU admission	5' Apgar <7	RDS	IVH gr. I-IV
Vertex/vtx (n=249)					
Both twins (%)	9.0	30.1	0.8	7.7	0.4
Twin A only (%)	4.9	5.2	2.8	4.5	2.8
Twin B only (%)	6.1	8.4	2.4	6.1	0.4
p value	0.56	0.17	0.78	0.43	0.03
Vertex/non-vtx (n=205)					
Both twins (%)	18.9	39.5	2.4	2.4	1.0
Twin A only (%)	3.5	4.9	2.0	2.0	3.0
Twin B only (%)	8	7.8	6.8	6.8	1.0
P value	0.06	0.24	0.02	0.02	0.16

(*Defined as death, RDS, IVH grade III/IV, BPD, PDA or seizures)

In the 205 patients who presented with twin A vertex and twin B non-vertex, the outcome of twin B was not affected by whether both delivered vaginally or both by c-section, regardless of whether twin B weighed more or less than 1500gm. In the 51 mixed deliveries (twin A vaginally, twin B abdominally), the only difference was a higher risk of low Apgar in Twin B (p=.001). Overall, non-vertex presentation of twin B was associated with an increased risk of RDS and low Apgar score.

CONCLUSIONS: Non-vertex presentation of twin B appears to be an independent risk factor for adverse perinatal outcome.

228 THE RELATIONSHIP BETWEEN BODY MASS INDEX AND GLUCOSE TOLERANCE TESTING IN MULTIFETAL GESTATION. *BC Brost*, J Ellings[x], RB Newman. Dept. of Ob/Gyn, Medical University of South Carolina, Charleston, SC.

OBJECTIVE: Multifetal gestations are reported to be at increased risk of gestational diabetes due to the larger placental mass. This study was designed to investigate the relationship between body mass index (BMI) and oral glucose tolerance testing (OGTT) in multifetal gestations.

STUDY DESIGN: Women (n=112) cared for in the Medical University Twins Clinic were evaluated with a 50-gm one-hour glucola at 26-28 weeks gestation. Glucose values >135 mg/dl) were used to indicate need for further evaluation by OGTT. Any two glucose determinations equal to or greater than established NDDG criteria constituted gestational diabetes. OGTT's with a single abnormal value (SAV) were also noted. Body mass index (BMI = weight (kg)/[height (m)]^2) was calculated for each patient undergoing glucose tolerance testing.

RESULTS: Women with multifetal gestations and an abnormal glucola, SAV, and a positive OGTT were categorized by BMI.

BMI	*+ Glucola*	*SAV*	*+ OGTT*
< 25.0	1/22 (4.5%)	1/22 (4.5%)	0/22 (0%)
25.0-29.9	7/44 (15.9%)	0.44 (0%)	1/44 (2.3%)
30.0-34.9	7/23 (30.4%)	1/23 (4.3%)	1/23 (4.3%)
35.0-39.9	5/12 (41.7%)	1/12 (8.3%)	1/12 (8.3%)
≥ 40.0	5/11 (45.5%)	1/11 (9.1%)	1/11 (9.1%)

CONCLUSIONS: The frequency of a positive glucola screening and abnormal OGTT is strongly related to BMI at the time of glucola screening in multifetal gestations. Approximately 60% of glucola evaluations could be eliminated by excluding women with multifetal gestations and BMI < 30.

229 INCREASED MATERNAL WEIGHT GAIN IN TWINS IMPROVES PERINATAL OUTCOME. *Roger Newman* for the NICHD-MFMU Network, Bethesda, MD.

PURPOSE: To determine the impact of maternal BMI and weight gain in pregnancy on intrauterine growth and premature delivery in twin gestations.

METHODS: 641 women with twins were enrolled in a multicentered randomized trial of low dose aspirin for preeclampsia prevention. Maternal height, prepregnancy weight and BMI were determined at randomization between 13 and 26 weeks gestation. Maternal weight was recorded at all subsequent visits. Rates of overall weight gain, early weight gain (prior to first study visit and <26 weeks) and late weight gain were all calculated as lbs per week. The association between rates of maternal weight gain and BMI and selected outcome variables (delivery <35 wks, combined twin birthweight and SGA) were described using descriptive statistics, Chi-square for categorical analysis; and logistic regression and correlation coefficients for continuous analysis.

RESULTS: 253 (39%) of the 641 twins delivered <35 weeks gestation and the mean combined birthweight was 4420±1373g. Rate of maternal weight gain was significantly associated (0.003) with prematurity; <0.5 lbs/wk: 34/71 (47.9%); 0.5-1.0 lbs/wk: 82/220 (37.3%); >1.0 lbs/wk: 76/273 (27.8%) delivered <35 wks. For each additional 1 lb/wk gained in pregnancy the odds of delivery <35 wks were reduced 50%. BMI (r=0.135), total (r=0.239), early (r=0.134), and late (r=0.151) weight gain were all significantly correlated (<0.01) with combined twin birthweight. Rates of maternal weight gain >1 lb/wk was associated with a 40% reduction in the risk of either twin being SGA. The association of weekly weight gain and SGA was strongest in late pregnancy while the association with prematurity <35 wks was significant in both early and late pregnancy.

CONCLUSIONS: Rates of maternal weight gain in twin gestations was significantly associated with perinatal outcome. Maternal weight gain of <1 lb/wk was associated with significantly increased risks of both prematurity and retarded intrauterine growth.

230 THE EFFECT OF GENDER AND PAIRING ON NEONATAL OUTCOMES IN CONCORDANT TWINS? *Guinn DA*, Heywood PA[x], Atkinson MW, Myers T[x], Muraskas J[x]. Loyola University, Maywood, IL and University of Washington, Seattle, WA.

OBJECTIVE: To determine the impact of infant gender and gender pair on neonatal outcomes in concordant twin pairs admitted to our NICU.

STUDY DESIGN: All concordant twins (birthweight [BW] discrepancy <20%) admitted to our NICU from 1990-1998 were identified in an existing computerized neonatal database. All neonates were managed by a single group of physicians using standardized protocols. The following outcomes were evaluated: gestational age at birth (GA), BW, respiratory distress syndrome (RDS), bronchopulmonary dysplasia (BPD), intraventricular hemorrhage (IVH), necrotizing enterocolitis (NEC), and retinopathy of prematurity (ROP).We compared the outcomes of female (♀) and male (♂) twins and also considered if they were the product of a male/male (MM), male/female (MF), or female/female (FF) gender pair.

RESULTS: We identified 182 concordant twin pairs. The mean inter-twin BW difference was 9%. The rates of adverse outcomes are presented.

	♀ n=174	♂ n=190	p value	FF n=124	MF n=100	MM n=140	p value
GA	29±3	29±3	0.86	31±3	29±3	30±3	<.00
BW	1351	1368	0.95	1587	1350	1449	<.00
RDS%	54	64	<.00	55	55	66	.13
IVH%	17	20	<.00	11	27	18	<.00
NEC%	5	5	0.52	4	9	4	.13
ROP%	6	12	<.00	5	5	15	<.00
BPD%	9	20	<.00	7	14	21	<.00

In addition, there were no differences in any of the outcomes when ♂ and ♀ of MF gender pairs were compared to each other. Multiple logistic regression controlling for BW confirmed that RDS, BPD and ROP but not IVH were independently associated with both gender pair and sex.

CONCLUSIONS: Males had worse outcomes than females as a whole. However, the males in the MF pairs had similar outcomes to their female sibs. MM pairs had higher rates of RDS, BPD, and ROP then either the MF or FF pairs. This suggests that the presence of the female sibling may be protective for male sibs with respect to lung and eye development.

231 THE OUTCOME OF TWIN PREGNANCIES WITH EXTREME DISCORDANCY OF BIRTH WEIGHT. *S. Cohen*,[x] S. Elizur,[x] M. Dulitzky,[x] S. Lipitz,[x] I. Novikov,[x] S. Mashiach,[x] E. Schiff. Dept. Ob/Gyn, Sheba Medical Center, Tel-Aviv Univ., Israel.

OBJECTIVE: To examine the outcome of pregnancies with extreme weight-discordant twins.

METHODS: 2121 pairs of twins were delivered between January 1984 and June 1998 in our medical center. Percentage of birthweight discordancy was defined as the birthweight difference between the twins devided by the larger twin's weight and multiplied by 100. This percentage was calculated for all twin births in which both fetuses were liveborn. In 23 pairs the discordancy was defined as extreme (> 35%) and they constituted the study group. Twenty-three pairs of twins defined with mild weight discordancy (15-25%) and 23 pairs defined as concordant to birthweight (< 15% difference) were matched to the study group patients based on gestational age at delivery (± 7 days) and on the mode of delivery, and constituted the control groups. The records of all the patients were reviewed for pregnancy complications and neonatal outcome variables (sepsis, respiratory distress syndrome, hyperbilirubinemia, intraventricular hemorrhage, necrotizing enterocolitis, retinopathy, or hypoglycemia).

RESULTS: The median discordancy in the study and control groups was 40% (36-63), 18% (15-25), and 6% (0-14), respectively. The median gestational age at delivery was 36 (30-40) weeks in all three groups. Significantly more parturients in the study group had hypertensive disorder compared to women with concordant twins (30.4% vs. 8.7%, p = 0.05). Abnormal antepartum tests of fetal surveillance of the smaller fetus were significantly more common in the study group (39.1%, vs. 4.3% and 0%, p < 0.01 for both). There was one case of neonatal mortality of a 30 week, 670 g delivered neonate (53% discordant) in the study group. Beside increased rate of retinopathy (17.4% vs. 0% in both control groups), hypoglycemia (26.1% vs. 8.7% in both control groups), and hyperbilirubinemia (60.9% vs. 39.1% and 13.0%), no other differences in neonatal outcome variables were found between the smaller neonates in the three groups. Moreover, no significant differences in neonatal outcome were found between the larger neonates in the three groups.

CONCLUSION: Twin pregnancies with extreme discordancy may reach a median gestational age of 36 weeks, with fair neonatal outcome as compared to pregnancies with mild or no discordancy.

232 DIFFERENCES IN TD_X-FLM VALUES IN TWINS VERSUS SINGLETONS. *T.F. McElrath,*[x] E.R. Norwitz, J.N. Robinson,[x] E.S. Lieberman.[x] Dept. of Ob/Gyn, Brigham & Women's Hospital, Boston, MA.

OBJECTIVE: To define and quantitate gestational age-specific differences in pulmonary maturity as defined by the TD_x-FLM assay between singletons and twins.

STUDY DESIGN: A retrospective analysis was performed on all deliveries from 28 to 37 weeks' gestation at the Brigham & Women's Hospital between November 1994 and August 1995. Of the 963 singleton and twin non-diabetic pregnancies, 188 (20%) had amniotic fluid TD_x-FLM measurements within 72 h of delivery (161/856 singletons [19%] and 27/107 [25%] twin pregnancies; p=0.11). Multiple linear and logistic regression analyses in addition to chi square and t-tests were performed to compare TD_x-FLM values.

RESULTS: There was no statistical difference between pregnancy complications or corticosteroid treatment between tested singletons and twins:

Antenatal event	*Singletons*	*Twins*
PPROM	87 (54%)	13 (48%)
PTL	99 (61%)	15 (56%)
PIH	11 (6%)	2 (7%)
Antenatal steroids	58 (36%)	8 (30%)

Logistic regression controlling for gestational age showed no preference for twin over singleton pregnancies to receive TD_x-FLM screening (OR:1.33; 95% CI, 0.83-2.13). Mean (95% CI) TD_x-FLM values by gestational age were significantly greater among twins:

	TD_x-FLM Measurements		
Weeks' gestation	*Singletons*	*Twins*	
28-32.9	47.4 (34.7-60.0)	62.0 (38.5-85.4)	p<0.3
33-35.9	65.2 (57.6-72.0)	87.8 (72.6-103.4)	p<0.05
36-37.9	77.0 (70.3-83.3)	99.7 (84.76-115.1)	p<0.01

Controlling for gestational age with ordinary least squares regression, the TD_x-FLM value for twin pregnancies was on average 21.4 points (95% CI, 9.1-33.7) higher than that for singletons.

CONCLUSION: At any gestational age, twins appear to have a 21 point higher TD_x-FLM value than singletons. Current literature suggests that the risk of RDS is not different for singletons and twins at any given gestational age. These data suggest therefore that different TD_x-FLM cutoff values be used for singletons and twins when calculating the risk for RDS.

233 DELAYED INTERVAL DELIVERY (DID): EXTENDED SERIES FROM A SINGLE MATERNAL FETAL MEDICINE PRACTICE. *L. Farkouh*[x] , E. Sabin, K. Heyborne, L.G. Lindsay[x] , R. Porreco. Obstetrix Medical Group of Colorado, Denver, Colorado.

OBJECTIVE: To review the extended experience of a single maternal fetal medicine practice with delayed interval delivery.

STUDY DESIGN: We completed a restrospective review of our maternal fetal medicine practice database from January 1991 through August 1998. Patients were derived from both primary and consultative practices. All patients were managed with tocolysis, antibiotics, and cerclage after delivery of the first fetus(es). Retained siblings were investigated by amniocentesis to exclude intra-amniotic infection.

RESULTS: Twenty patients had attempted DID. Exclusion criteria for DID included monochorionicity, abruptio placentae, severe pre-eclampsia, and the need for hysterotomy. The mean latency interval was 35.3 days with a range of 3 to 123 days. Additionally, patients in whom previous cerclages had been placed had significantly shorter mean latency intervals as compared to patients without previous cerclages (12.4 days vs 42.9 days, p = .009). Patients with long latency intervals (≥ 50 days) had earlier births of the first fetus.

CONCLUSION: Selected multichorionic pregnancies may benefit from DID. Patients with previous cervical cerclages in the index pregnancy are less likely to achieve significant latency intervals. Even modest intervals between births of siblings at critical gestational ages can improve neonatal survival and in turn decrease neonatal morbidity.

234 WITHDRAWN

235 CESAREAN DELIVERY OF TWINS AND NEONATAL RESPIRATORY DISORDERS. A. Madden[x], *S. Chasen,* F. Chervenak. Department of OB/GYN, New York Hospital/Cornell Medical Center, New York, NY.

OBJECTIVE: Studies have shown an increased risk of neonatal respiratory disorders with cesarean delivery prior to labor before 39 weeks' gestation in singleton pregnancies. There is evidence that lung maturity is achieved earlier in twin pregnancies. The objective of this study is to determine the risk of neonatal respiratory disorders with cesarean delivery prior to labor in twin pregnancies based on gestational age.

STUDY DESIGN: The charts of all patients with twin pregnancies who underwent cesarean delivery after 36 0/7 weeks were reviewed. All cases in which delivery was done for a clear maternal (e.g. preeclampsia) or fetal (e.g. IUGR) indication were excluded. Clinical data were obtained from review of maternal and neonatal charts. Neonatal respiratory disorders included transient tachypnea of the neonate (TTN) or respiratory distress syndrome (RDS), and these diagnoses were made by neonatologists. Data were analyzed with student's t test and chi-square analysis.

RESULTS: Cesarean delivery before labor was performed on 140 women with twin pregnancy after 36 0/7 weeks. The mean gestational age at delivery in the study group was 37.5 ± 0.9 weeks (range 36.0 to 40.2 weeks). The indication for cesarean delivery was malpresentation of one or both fetuses in 69.9% of cases. Respiratory disorders were diagnosed in 7.5% of neonates. Of all pregnancies included in the study, 11.0% had one or both neonates affected. The incidence of neonatal respiratory disorders in one or both twins was significantly higher in cases where cesarean delivery was performed before 38 0/7 weeks (17.8% vs. 0%, p = .02).

CONCLUSIONS: Neonatal respiratory disorders are more common in twin pregnancies with cesarean delivery prior to the onset of labor before 38 0/7 weeks. In the absence of a clear maternal or fetal indication for delivery, consideration should be given to avoiding cesarean delivery until the spontaneous onset of labor or until after 38 completed weeks should be considered.

236 THE OUTCOME OF SELECTIVE TRANSVAGINAL EMBRYO REDUCTION IN HIGH ORDER MULTIPLE PREGNANCIES. *J. Itskovitz-Eldor*, I. Thaler*, S. Kol*, M. Coffler*, A. Drugan.* Dept. Ob/Gyn, Rambam Medical Center and Technion-Israel Institute of Technology, Haifa, Israel.

OBJECTIVE: A major source of multiple pregnancies is the use of assisted reproductive technologies. Selective fetal reduction, routinely performed transabdominally, is used to decrease the obstetrical and neonatal complications associated with these pregnancies. The overall pregnancy loss rate (<24 weeks) of this procedure based on a multicenter study involving 1789 cases was 11.7% (J Soc Gynecol Invest 1996;3:23-6). For the subgroup of high order (≥4) multiple pregnancy the loss rate increased to 15.3%. We report our experience with early (7 to 8 weeks' gestation) transvaginal embryo aspiration for early selective reduction.

STUDY DESIGN: Retrospective case series of 90 early transvaginal embryo aspiration, of which 30 were performed in high order (≥4) multiple pregnancies.

RESULTS: The overall pregnancy loss (early and late abortion up to 24 weeks gestation) was 6.7%. This rate is not statistically different from that reported in the multicenter study mentioned above. In contrast, in the subset of patients with 4 or more embryos, only one loss (of 39 cases) was recorded, compared to 141 losses (of 919 cases) in the multicenter study ($p<0.05$).

CONCLUSIONS: Transvaginal embryo aspiration in early gestation is a simple and safe procedure for selective reduction in multifetal pregnancies. The outcome of the early transvaginal procedure in high order multiple pregnancies (≥4) is better compared to the routinely used abdominal approach in later gestational weeks.

237 PAROUS AND AFRICAN-AMERICAN WOMEN HAVE HIGHER INITIAL HEMOGLOBIN A1C (HgA1c) LEVELS IN DIABETIC PREGNANCY. *W. L. Holcomb, Jr.,* D.J. Mostello, G.F. Leguizamon.* Divisions of Maternal-Fetal Medicine, St. Louis University and Washington University, St. Louis, MO.

OBJECTIVE: We examined epidemiological risk factors for poor glucose control in early diabetic pregnancy.

STUDY DESIGN: One hundred women with pregestational diabetes were studied. HgA1c level was measured at the initial prenatal visit. Factors predictive of values above the median were identified using a logistic regression model.

RESULTS: The mean maternal age was 28.0 ± 6.0 years. Among the 100 women: 45 were nulliparous; 44 were African-American; 55 white; 1 other race; 54 were obese (BMI>26); 30 had severe disease (>Class C); 43 were married; 42 were privately insured. The mean gestational age at first visit was 11.8 ± 7.0 weeks. The median HgA1c at first visit was 8.4% (range 4.4-14). A logistic model including the above explanatory variables yielded 4 factors with p values <0.5: African-American, nulliparous, severe disease, and maternal age. A reduced model with these independent variables yielded the following odds ratios (95% confidence intervals) and p values:

	Odds ratio	p value
African-American	3.2 (1.3-7.7)	0.01
Nulliparous	3 (0.1-0.8)	0.01
Maternal age (years)	0.9 (0.9-1.0)	.10
Severe disease	.9 (0.7-4.9)	0.20

CONCLUSIONS: Corrected for age, marital status, insurance status, severity of disease, obesity, and onset of care, African-American ethnicity is a risk factor for hyperglycemia in early pregnancy and nulliparity is protective. These new findings may help guide public health interventions to improve outcome in diabetic pregnancy.

238 GESTATIONAL DIABETES: WILL THE NEW DIAGNOSTIC CRITERIA HAVE ANY IMPACT ON THE PERINATAL OUTCOME? *CA Major, MD,* and JA Henry, RNC* Dept. of OB/GYN, University of California, Irvine Medical Center, Orange, Calif.

OBJECTIVE: To determine the impact that the lower "cut off" values for the 100 gram glucose tolerance test (GIT) will have on the incidence of gestational diabetes mellitus (GDM) and to determine whether the additional patients that will be diagnosed by the new criteria have the same risks, as our present GDM patients, for perinatal morbidity.

STUDY DESIGN: The resultls of all 100 gram GITs performed during 1996 were reviewed. One hundred forty seven patients had been diagnosed with GDM using the National Diabetes Data Group (NDDG) criteria (FBS-105mgdl, 1 h-190mg/dl, 2 h-165 mg/dl, 3 h-145 mg/dl). An additional 74 patients were identified who were not found to have GDM by the NDDG criteria, but who would have been diagnosed with GDM using the new lower "cut off" values as recommended by the 4th International Workshop-Conference of GDM (FBS-95 mg/dl, 1 h-180 mg/dl, 2 h-155 mg/dl, 3 h-140 mg/dl). The maternal and neonatal charts of all 221 patients were reviewed and abstracted for: maternal demographics, neonatal birthweight, mode of delivery, and the rates of macrosomia, shoulder dystocia and cesarean section (for cephalopelvic disproportion and macrosomia). These findings of GDM patients diagnosed using the NDDG criteria and those diagnosed using the new lower criteria were compared using Chi Square, Fisher exact and student t-tests.

RESULTS: Demographics between the 2 groups were similar. The incidence of GDM diagnosis in the NDDG criteria was 7.7%. The addition of the patients diagnosed with GDM using the new criteria increased the incidence of GDM to 11.6%.

	NDDG Criteria	New Criteria	p value
Macrosomia	24 (16.3%)	27 (36.4%)	0.001
C/S (CPD/macro)	31 (21%)	34 (46%)	0.0002

CONCLUSIONS: The new criteria for diagnosing GDM will result in a significant increase in the number of GDM patients diagnosed. These additional GDM patients, have higher rates of macrosomia and C/S than do GDM patients traditionally diagnosed and appropriately treated. The risk of perinatal morbidity in these additional patients appears to be similar to that of patients diagnosed with GDM by the NDDG criteria.

239 CEPHARARIN VERSUS CEFOXITIN PROPHYLAXIS FOR CESAREAN SECTIONS. *CA Major, MD,* T. Reimbold, RN*, MA Morgan, MD, Dept. of OB/GYN. University of California, Irvine Medical Center, Orange, CA

OBJECTIVE: The purpose of this study is to compare the efficacy of Cephaparin, a first generation cephalosporin, to Cefoxitin, a second generation cephalosporin, in preventing post cesarean section infectious morbidity.

STUDY DESIGN: Laboring women with an indication for cesarean section were randomized in a double blind fashion to receive either 2 grams of IV Cephaparin (n=74) or 2 grams IV Cefoxitin (n=82). All antibiotics were given to the patients during the cesarean section, after the infant cord was clamped. Maternal demographic variables, such as age, race, parity, gestational age maternal weight, maternal diabetes, length of labor, and fever during labor, were compared between the groups. Post operative endometritis (Temp >38° C abdominal pain, uterine tenderness) and post operative infections (cystitis, bacteremia, wound cellulitis, wound infection, septic pelvic thrombophlebitis and pyelonephritis) were identified and compared between the groups. Statistical analysis included Chi Square test, Fisher exact test, and student t-test as well as relative risk at a 95% confidence interval.

RESULTS: The maternal demographic variables were compared between the 2 groups and found to be similar. The incidence of post operative endometritis was 2-fold higher in the Cephaparin group (27%) when compared to the Cefoxitin group [(12.1% [RR=2.2 95% CI(1.1-4.4]; p=0.030)]. The incidence of overall post operative infections was also significantly higher (29.7% vs. 14.6%) in the Cephaparin group when compared to the Cefoxitin group. (RR=2.0, 95% CI [1.0-3.8]; p=0.034). The length of hospital stay was longer in the Cephaparin group (3.62±1.04 days) than in the Cefoxitin group (3.24±0.54 days). This difference, however, was not statistically significant (p=0.052). The length of hospital stay in patients with post operative endometritis was 4.73±1.1 days in the Cephaparin group versus 3.93±1.0 days in the Cefoxitin group (p=0.041).

CONCLUSION: Cefoxitin prophylaxis in cesarean section patients is more effective in preventing post operative infections than is Cephaparin prophylaxis.

240 A RANDOMIZED, DOUBLE-BLIND COMPARISON OF AMPICILLIN/SULBACTAM AT 1.5 G AND 3.0 G DOSES FOR THE TREATMENT OF POSTPARTUM ENDOMETRITIS. *K.G. Perry Jr*, J.E. Larmon, J.F. Cadle,[x] C.M. Isler,[x] R.W. Martin. Department of Ob/Gyn, University of Mississippi Medical Center, Jackson, MS.

OBJECTIVE: To compare the efficacy, safety and cost of parenteral ampicillin/sulbactam at 1.5 g or 3.0 g doses for the treatment of postpartum endometritis.

STUDY DESIGN: Candidates for the investigation were chosen from hospitalized patients with postpartum endometritis. One-hundred patients were randomized to receive either ampicillin/sulbactam 1.5 g IV every 6 hours (1.5 g group) or ampicillin/sulbactam 3.0 g IV every 6 hours (3.0 g group). Endometrial and blood specimens were obtained for culture and sensitivity testing. The antibiotic regimen was changed to triple antibiotics in those patients not responding to therapy. A therapeutic success was defined as a decrease in temperature and uterine tenderness within the first 36 hours with complete resolution by 72 hours without a change in antibiotics. The primary outcome measures were cure rates at 48 and 72 hours. Other outcome variables included side effects and cost of antibiotic therapy.

RESULTS: Fifty patients were randomized to the 1.5 g group and 50 to the 3.0 g group. The demographic characteristics and the length of rupture of membranes were similar between the two groups. The number of positive endometrial and blood cultures were similar between the two groups. The number of patients requiring a change in antibiotic therapy within 48 hrs was greater in the 1.5 g group than in the 3.0 g group (16% vs 10%), but this did not reach statistical significance ($p > 0.05$). The cure rates were significantly higher in the 3.0 g group than the 1.5 g group at 48 and 7 2hours (62% vs 40% and 76% vs 54%, $p < 0.001$). The side effects including headache, diarrhea, nausea and rash were infrequent but similar between the two groups. The average cost of antibiotic therapy was higher in the 1.5 g Group ($639.70±117.20) than the 3.0 g group ($494.30±111.80), but this was not statistically significant ($p > 0.05$).

CONCLUSION: Ampicillin/sulbactam 3g IV every 6 hours is more effective than ampicillin/sulbactam 1.5 g IV every 6 hours for the treatment of postpartum endometritis without increasing the cost of antibiotic therapy.

241 SECOND TRIMESTER UTERINE EVACUATION: A COMPARISON OF INTRA-AMNIOTIC (15s)-15-METHYL-PGF$_{2\alpha}$ AND INTRAVAGINAL MISOPROSTOL. *K.G. Perry, Jr*, B.K. Rinehart, D.A. Terrone, R.W. Martin, W.L. May,[x] W.E. Roberts. Dept. Ob/Gyn, Univ. of Miss. Med. Ctr., Jackson, MS.

OBJECTIVE: To compare the efficacy, safety, and side effects of intra-amniotic (15S)-15-methyl-PGF$_2\alpha$ (15-M-PGF$_2\alpha$) and intravaginal misoprostol for second trimester uterine evacuation.

STUDY DESIGN: Candidates for the investigation were chosen from those patients presenting with a singleton pregnancy between 17 and 24 weeks with an indication for a therapeutic second trimester termination. Patients were excluded if they had an intrauterine fetal demise, oligohydramnios, or a contraindication to receiving prostaglandins. Fifty-one patients were randomized to receive either a single 2.5 mg intra-amniotic injection of 15-M-PGF$_2\alpha$ or two 200 µg doses of intravaginal misoprostol at 12 hour intervals. Those undelivered at 24 hours received dinoprostone 20 mg intravaginal suppositories every 3 hours. The primary outcome measure was evacuation of the uterus within 24 hours. Secondary outcome measures included duration of abortion, incidence of complete abortion, blood loss, incidence of side effects and complications.

RESULTS: Twenty-six patients were randomized to receive intra-amniotic 15—M-PGF$_{2\alpha}$ and 25 patients were randomized to receive intravaginal misoprostol. The demographic characteristics were similar between the two groups. The majority of patients underwent pregnancy termination for fetal malformations. The mean time from initiation of termination until uterine evacuation was shorter in the 15-M-PGF$_2\alpha$ group than the misoprostol group (17.5 ± 8.6 hours versus 22.3 ± 12.5 hours) but this was not statistically significant ($p > 0.05$). The rate of successful fetal evacuation at 24 hours was significantly higher in the 15-M-PGF$_2\alpha$ group than the misoprostol group (88% versus 60%, $p = 0.02$). The complete abortion rate was similar between the two groups (82% vs 92%, $p > 0.05$). The incidence of side effects, complications, and estimated blood loss were similar in both groups.

CONCLUSION: The use of intra-amniotic 15-M-PGF$_2\alpha$ for midtrimester therapeutic pregnancy terminations is safe and associated with a greater number of successful uterine evacuations within 24 hours without an increase in adverse effects when compared to intravaginal misoprostol.

242 A RANDOMIZED PROSPECTIVE COMPARISON OF THE INTRACERVICAL FOLEY BULB TO INTRAVAGINAL MISOPROSTOL (CYTOTEC) FOR PREINDUCTION CERVICAL RIPENING. *J. Manley*[x], L. Nguyen[x], P. Shlossman, G. Colmorgen. A. Sciscione, Division of Maternal-Fetal Medicine, Christiana Hospital, Newark, DE.

OBJECTIVE: Preinduction cervical ripening is an important precedent to successful induction of labor in the woman with an "unripe" cervix. We sought to compare the efficacy and safety of intracervical Foley bulb to intravaginal misoprostol.

STUDY DESIGN: Women presenting for the induction of labor with a Bishop score of <5, a singleton gestation, vertex presentation were entered into the study. All patients had reassuring fetal heart rate tracings and <6 contractions per hour on admission. Patients randomized to the Foley group had a #14 Foley catheter inserted into the intracervical canal, the balloon inflated (30cc), and placed at traction. The misoprostol group had 50 mcg of misoprostol placed intravaginally every four hours, to a maximum of six times. After Foley bulb extrusion or Bishop score >5 in the misoprostol group, oxytocin was started if the patient was not in labor. Outcome variables were change in Bishop score, Bishop score after cervical ripening, maximum oxytocin, hyperstimulation (six contractions in ten minutes with a non-reassuring fetal heart-rate), preinduction ripening time, induction time (oxytocin to delivery), mode of delivery, and adverse neonatal outcomes. Fisher's Exact test and Chi-square were used where appropriate. A p-value of <0.05 was considered significant.

RESULTS: Eighty-seven women were entered into the trial, with 47 in the Foley group and 40 in the misoprostol group. There was no statistically significant difference in maternal age, gravidity, parity, previous cesarean delivery, Bishop score at entry, or gestational age at entry between the two groups. There was no significant difference between the Foley group and the misoprostol group with respect to Bishop score after cervical ripening (6.0 vs. 5.2, p=NS), change in Bishop score (3.3 vs. 2.8, p=NS), preinduction cervical ripening times (475 vs. 580 minutes, p=NS), oxytocin induction times (617 vs 504 minutes, p=NS), and total induction times (1095 vs 1063 minutes, p=NS). There was a significant difference in the occurrence of hyperstimulation between the Foley group and misoprostol group (0 vs. 25%, $p<0.001$). There was no significant difference in the mode of delivery, adverse neonatal outcomes, or intrapartum complications. After a uterine rupture in a woman with a previous cesarean delivery in the misoprostol group, women with a previous cesarean delivery were excluded from the study.

CONCLUSIONS: Foley bulb and misoprostol are equally efficacious in providing cervical ripening in women with a Bishop score <5. However, misoprostol had a significantly higher rate of uterine hyperstimulation and was associated with one uterine rupture.

243 IS OXYTOCIN HAZARDOUS FOR THE MANAGEMENT OF LABOR IN GRANDMULTIPAROUS WOMEN? *Z. Ben-Aroya*[1], T. Silberstein[1], M. Friger[2], D. Yochai[1], M. Katz[1] and M. Mazor[1]. Dept. OB/GYN, Soroka Medical Center[1] and the Dept. of Epidemiology[2], Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel.

OBJECTIVE: To determine whether the use of oxytocin for the management of labor in grandmultiparous women increases the risk of peripartum complications.

STUDY DESIGN: Between the years 1989-1995, 11702 grandmultiparous women (parity≥6) delivered in the Soroka University Medical Center. In 535 grandmultiparous women, management of labor included use of intravenous oxytocin. The control group consisted of 10852 multiparous women who did not have any use of oxytocin during the process of labor. All women were monitored for fetal heart rate (FHR) and uterine contractions using continuous tocodynamometer. We compared the rates of placental abruption, fetal distress, intrapartum death (IPD), post partum hemorrhage (PPH), uterine rupture, retained placenta and the need for manual lysis, vaginal and cervical tears, Cesarean sections and vacuum deliveries in these two groups by using x^2 analysis and Fisher's exact test when appropriate.

RESULTS: No significant differences were found between the oxytocin group and the control group in the rates of placental abruption (1.1% vs 0.9%), IPD (0.4% vs 0.1%), PPH (0.6% vs 0.4%), uterine rupture (0% vs 0.1%), retained placenta (1.3% vs 0.6%), the need for manual lysis (0.7% vs 0.4%), vaginal tears (4.5% vs 4.5%) and cervical tears (0.2% vs 0.2%), respectively. In contrast, a significant increase in the rates of fetal distress (6% vs. 3.8% p=0.011), Cesarean sections (16.1% vs. 11.6% p=0.002) and vacuum deliveries (3.2% vs. 1.4% p=0.001) was observed in women in the oxytocin group as compared to the control group.

CONCLUSIONS: The use of oxytocin in the grandmultiparous parturient is a relatively safe procedure. However, due to higher rates of fetal distress and Cesarean sections, the use of continuous FHR monitoring is advisable.

244 CERVICAL DILATATION AT CESAREAN FOR LABOR ARREST. *D Rouse*, J Owen, J Hauth. Dept. of OB/GYN, Univ. of Alabama at Birmingham, Birmingham AL.

OBJECTIVE: To characterize the distribution of cervical dilatations at which cesarean deliveries are performed for labor arrest.

STUDY DESIGN: Retrospective analysis of women who entered either of two randomized trials of cesarean techniques conducted at our hospital from 6/89-6/91 and 5/93-11/94. Women were eligible for analysis if they experienced labor (induced, augmented, or spontaneous), had labor arrest (failed induction, active phase arrest, failure of descent) as a cesarean indication, and had a cervical examination recorded proximate to their cesarean. Cervical dilatations at cesarean were grouped from 0-3 cm (latent phase), 4-9 cm (active phase), and complete cervical dilatation (second stage). Since not all laboring women have entered the active phase at 4 cm, the number of cesareans performed at 4 cm was also tabulated.

RESULTS: 509 of 1,300 women (28%) who were enrolled in the two randomized trials were eligible. Overall, 16% of cesareans for labor arrest were performed at 0-3 cm, 64% at 4-9 cm, and 20% at complete dilatation. In total, 36% (147 of 406) of 1st stage cesareans were performed at 0-4 cm. Parity had little influence on the rates of latent and active phase cesarean. However, nulliparous had a higher rate of 2nd stage cesarean than parous women, 23% vs. 16%.

CONCLUSIONS: These data illustrate that women who undergo cesarean for labor arrest do so across the entire spectrum of cervical dilatation. Because a substantial portion of cesareans for abnormal labor progress are performed at 0-4 cm, development of an evidence-based definition of failed induction would likely redress the current high number of cesareans which, for the purposes of national data collection, are most frequently attributed to "dystocia."

245 HIGH CONCENTRATION OF INTERLEUKIN-6 (IL-6) IN THE BLOOD SERUM OF PREGNANT WOMEN AS AN INDEX OF FAILURE IN TOCOLITIC TREATMENT *P. Oszukowski*, E. Malafiej, A. Pięta, E. Wierzbicka From the Clinic of Perinatology, Institute of the Polish Mother Memorial Hospital in Łódź, Poland.

OBJECTIVE: A common cause of pre-term labours is an intrauterine infection. The infection is mainly diagnosed on the basis of laboratory indices. A sensitive index of infection is an increased concentration of proinflammatory cytokins, among other -IL-6. One of the stimulators of IL-6 secretion is endotoxin. IL-6 plays an important part in the initiation of the acute phase reaction.

STUDY DESIGN: The studies covered 62 pregnant women with symptoms of imminent pre-term labour in whom tocolitic treatment was applied. Among others, the level of IL-6 in their blood was evaluated. After the labour, histopathologically evaluated were fetal appendages and clinically evaluated was the fetus - with the aim of finding a congenital infection. The obtained results were compared by the λ^2 test and small samples test.

RESULTS: In 39 pregnant women the tocolitic treatment appeared to be ineffective; the mean concentration of IL-6 in those women came to 24.8 (pg/ml), whereas in the group of women in whom the treatment was successful - 9.5 (pg/ml). The difference is statistically significant for $p< 0.05$. In 27 cases of pre-term labours a congenital infection in newborns was found. Among the pregnant women with pre-term labours and infections the average values of IL - 6 concentrations reached 28.1 (pg/ml), whereas in pregnant women with pre-term labours without infections the concentration was 13.6 (pg/ml). The difference is statistically significant for $p < 0.05$.

CONCLUSIONS: High concentrations of IL-6 in the blood serum of pregnant women with symptoms of pre-term labour prognose badly for tocolitic treatment.

246 LABOR COMPLICATIONS BY WEEK OF GESTATION: 40, 41, AND 42 WEEKS *JM Alexander*, DD McIntire,[x] KJ Leveno. Dept. Ob/Gyn, Univ. of Tx Southwestern Medical Ctr, Dallas, Texas.

OBJECTIVE: To compare the incidence of labor complications at 40, 41, and 42 weeks gestation when intervention is practiced routinely at 42 weeks but not at 41 weeks.

STUDY DESIGN: Retrospective analysis of singleton cephalic liveborn infants without malformations, delivered from 1 January 1988 to 31 December 1997. Women with hypertension, diabetes and prior cesareans were excluded. Statistical methods included Chi-square.

RESULTS:

	Weeks gestation			
	40 n (%)	41 n (%)	42 n (%)	P value
Pregnancies	31,034(100)	17,122(100)	11,441(100)	
Inductions	667(2)	990(6)	3519(31)	<.001*
Second Stage				
≥2 hrs	600(2)	491(3)	364(3)	<.001**
Meconium	6438(21)	4339(25)	2626(23)	<.001*
Cesarean:				
Total	1813(6)	1524(9)	1444(13)	<.001*
Dystocia	1012(3)	852(5)	888(8)	<.001*
Fetal Distress	629(2)	532(3)	450(4)	<.001*

*p <.001 for 40 vs 41 and 41 vs 42 weeks.
** p <.001 for 40 vs 41 weeks; p=.28 for 41 vs 42 weeks.

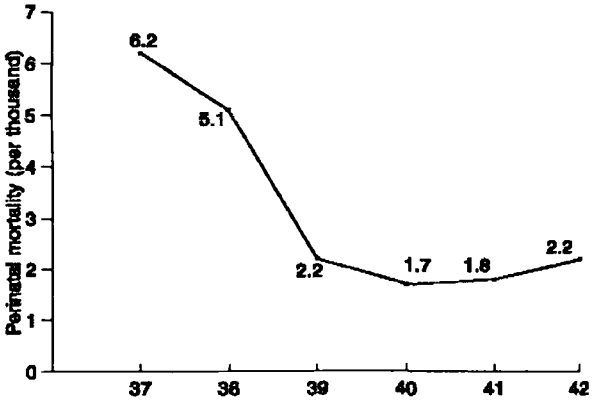
CONCLUSIONS: Labor complications and cesarean deliveries progressively increased in incidence from 40 to 41 to 42 weeks gestation. Meconium incidence decreased significantly at 42 weeks, likely the result of routine intervention for prolonged pregnancy.

247 PERINATAL MORTALITY BY WEEK OF GESTATION IN LATE PREGNANCY *JM Alexander*, DD McIntire,[x] KJ Leveno. Dept. Ob/Gyn, Univ. of Tx Southwestern Medical Ctr, Dallas, Texas.

OBJECTIVE: To compare the incidence of stillbirths and neonatal deaths for each week of gestation from 37 to 42 weeks when intervention is practiced at 42 weeks but not routinely at 41 weeks.

STUDY DESIGN: Retrospective analysis of 96,596 singleton cephalic infants without malformations and delivered between 1 January 1988 and 31 December 1997. Women with hypertension, diabetes, and prior cesareans were excluded. Statistical analysis was performed using Chi-square.

RESULTS:



p= .54, 39 to 42 weeks.

CONCLUSIONS: There was no significant difference in perinatal mortality from 39 to 42 weeks gestation when intervention occurred routinely at 42 weeks but not at 41 weeks gestation.

248 CONTROVERSIAL ISSUES WITH VAGINAL BIRTH AFTER CESAREAN AND RISK OF UTERINE RUPTURE: *C.A. Lyons*, C.V. Towers, P.J. Rumney[x], D. Ahdoot[x], D. Friend[x], C.A. Major, T. Asrat. Long Beach Memorial Women's Hospital, Long Beach CA, University of California, Irvine, Orange, CA, Hoag Memorial Hospital Presbyterian, Newport Beach, CA and Saddleback Memorial Women's Hospital, Laguna Hills, CA.

OBJECTIVE: Vaginal birth after cesarean section (VBAC) following previous low segment transverse cesarean section (LSTCS) is an accepted option for delivery. However, there is concern regarding the safety associated with VBAC and the use of prostin gel, use of pitocin, number of previous cesarean sections, prior layers of uterine incision closure and external cephalic version. Our objective was to evaluate these areas of controversy in a large series of patients with documented rupture of LSTCS scars.

STUDY DESIGN: All patients with the diagnosis of uterine rupture occurring between January 1988 and June 1998 at 4 major hospitals were collected and analyzed for these controversial issues. Uterine rupture was defined as a complete disruption of all layers of the uterine wall.

RESULTS: 57 patients with a uterine rupture of a previous LSTCS scar were identified out of 118,374 deliveries. 50 had 1 prior cesarean and 7 had 2 prior cesareans. Prostin gel was used in 10/57 (17%) and the maximum dose was 1.5mg in divided doses. Pitocin induction was utilized in 18/57 and augmentation in 24/57 for a total of 42/57 (73.7%) patients. However, pitocin exceeding 20mIU/min was administered in only 3 (7%) patients. Data for layers of uterine closure were available in 45/57 (79%) patients. 37/45 (82.2%) had a prior 2 layer closure and 8/45 (17.8%) had a prior single layer closure. No external cephalic versions had been performed in any of these cases.

CONCLUSION: This is one of the largest reviews in the literature reporting on uterine rupture of a prior LSTCS scar. Our data reveal that the majority of previous LSTCS uterine closures were double layer. The use of prostin gel, number of previous cesarean sections and external cephalic version were identified in less than 1/5 of the patients with uterine rupture. The use of pitocin was seen in the majority of cases but rates greater than 20mIU/min was small.

249 BED REST VERSUS CERVICAL CERCLAGE IN THE TREATMENT OF CERVICAL INCOMPETENCE MANIFESTED BY ULTRASOUND AROUND THE TIME OF FETAL VIABILITY. *ER Guzman*, CW Benito, L Yeo[x], AM Vintzileos, C Walters[x], N Meirowitz[x]. UMDNJ-Robert Wood Johnson Medical School/St. Peter's Medical Center, New Brunswick, NJ

OBJECTIVE: The use of cervical cerclage versus bed rest around the time of fetal viability is controversial. The purpose of this study is to compare the use of cervical cerclage versus bed rest in response to an ultrasound diagnosis of cervical incompetence between 20 and 24 weeks' gestation.

STUDY DESIGN: We retrospectively reviewed our ultrasound records from 9/92 to 12/98 for women at risk for spontaneous pregnancy loss and prematurity who were followed with serial cervical transvaginal sonography and transfundal pressure between 16 and 24 weeks' gestation. Multiple gestations were excluded. We identified women who developed an ultrasound diagnosis of cervical incompetence defined as progressive cervical shortening to <2 cm between 20 and 24 weeks' gestation. The decision to treat with either bed rest or cerclage was left to the physicians in charge. Comparisons were made using unpaired-t test and Chi-square analysis with significance set at p<0.05.

RESULTS:

	Bed rest N=17	Cerclage N=28	P value
Gestational age at diagnosis of cervical incompetence (weeks)	22.8±1.2	21.6±1.5	0.007
Shortest cervical length before treatment (cm)	1.42±0.4	0.75±0.5	<.0001
Gestational age at delivery (weeks)			
Mean±SD	34.3±4.7	37.5±2.6	0.005
<24	1	0	
24-28	1	0	
29-32	2	2	
33-36	7	4	
≥37	6	22	0.04

CONCLUSION: Despite a significantly earlier time of ultrasound diagnosis of cervical incompetence and significantly shorter cervical length before institution of treatment, treatment with cervical cerclage for an ultrasound diagnosis of cervical incompetency between 20 and 24 weeks' gestation resulted in significantly better pregnancy outcome than treatment with bed rest only.

250 VAGINAL DELIVERY VERSUS CESAREAN SECTION FOR TRIPLETS AND QUADRUPLETS: NO DIFFERENCE IN IMMEDIATE MEASURES OF NEONATAL OUTCOME. *C Sheppard*, AM Malinow[x],LS Alger, Dept Ob/Gyn/Repro Sciences, Univ of Maryland School of Medicine, Baltimore, MD.

OBJECTIVE: Cesarean section (CS) is generally advocated as the delivery method of choice in triplets or quadruplets (quads) despite the lack of evidence for superiority of this method when compared to vaginal delivery (VD). The null hypothesis is that triplets and quads delivered vaginally do not have lower Apgar scores or umbilical artery(UA) blood pH when compared to those delivered by CS.

METHOD: All women delivered of triplets or quads at greater than 24 weeks' gestation in the past 10 years were identified in the delivery database. Maternal age, parity, gestational age, obstetric course, mode of delivery, type of anesthesia, Apgar scores and umbilical cord blood gases were recorded. Analysis of variance and χ^2 tests were used to identify significant differences between groups, defined as p<0.05.

RESULTS: 25 triplet and 3 quad gestations delivered during the study period, resulting in 86 live births for which data was available.18 patients (64%) were delivered by CS, 10 by VD (36%). All deliveries were attended by staff perinatologists, obstetric anesthesiologists and neonatologists. There was no difference in maternal age, parity, gestational age at delivery, type of anesthesia, or the use of antenatal steroids by mode of delivery.

Delivery intervals were longer in VD versus CS: mean A-B time (seconds) 270 ± 197 v. 65 ± 65; B-C time 390 ± 310 v. 63 ± 34; A-C time 660 ± 477 v. 128 ± 72, all p<0.001. Neither the incidence of Apgar <7 at one or five minutes nor the UA pH was significantly different between CS and VD infants matched for birth order.

	CS			VD		
Apgars (1'/5')	A	B	C	A	B	C
Median	8/9	8/9	7/9	9/9	8/9	7.5/9
Range	2-9/4-10	4-9/8-10	1-9/5-9	7-9/8-10	5-9/6-10	2-9/8-10

UA pH	A	B	C	
CS	7.28 ± 0.05	7.29 ± 0.04	7.30 ± 0.05	p=0.68
VD	7.31 ± 0.03	7.31± 0.05	7.28± 0.08	p=0.45
p	0.11	0.29	0.55	

CONCLUSION: Vaginal delivery of triplets and quads is not associated with lower Apgar scores or UA pH compared to CS despite longer delivery intervals. This data suggests that a trial of labor and vaginal delivery can be safely accomplished in a perinatal center.

251 ANCILLARY SERVICE UTILIZATION BY PREGNANT MEDICAID MANAGED CARE PATIENTS: HOSPITAL CLINIC vs. PRIVATE OFFICE. *JFX Egan*, M Dammann[x], S Powell[x], P Kubick[x], C Ingardia, S Curry[x], Saint Francis Hospital and Medical Center, Hartford, CT, Hartford Hospital, Hartford, CT, and Univ of CT Health Center, Farmington, CT

OBJECTIVE: To measure the utilization of social and ancillary services by Medicaid Managed Care (MMC) insured pregnant women in a hospital based, resident clinic (HC) or a private office (PO) in an urban populaiton.

STUDY DESIGN: Data was prospectively collected on all deliveries at Hartford Hospital and Saint Francis Hospital and Medical Center from July 1, 1996 - June 30, 1997 of women who resided in Hartford and had insurance at the time of delivery. Data included: site of prenatal care, maternal age, language, race, ethnicity, marital status, employment, level of education, smoking, substance abuse, domestic violence, homelessness, community maternal and infant outreach visits, social work contacts, transportation assistance, medications given, and referrals for: smoking cessation substance abuse, teenage pregnancy, nutrition counseling, home healthcare, preterm birth prevention. Descriptive statistics, Chi square and the Student *t* test were used. A p value of < .05 was considered significant.

RESULTS: Of the 1,285 women, 978 women were cared for in an HC and 307 at a PO. There were no differences regarding maternal age, U.S. Citizenship status, language spoken, marital status or level of education. There were differences in specific insurance plans, race, ethnicity, and employment. There was a higher incidence in marijuana use (10.3% vs. 5.9 %; p=0.017), heroin use (1.5% vs. 0.65%; p=0.042) and domestic violence (6.9% vs. 1.9%; p=0.000) in the HC. There was also a higher incidence of homelessness (1.1% vs. 0%, p=NS) in the HC.

	CLINIC, %	OFFICE, %	p
Outreach visits	2.1	1	<0.000
Social work contact	26.2	6.8	<0.000
Medications given	53.3	4.6	<0.000
Smoking cessation referral	9.3	0.7	<0.000
Substance abuse referral	10.9	0.3	<0.000
Teen clinic	13	0	<0.000
Nutrition referral	60.9	11.4	<0.000
Home healthcare	41.8	33.6	<0.000
Preterm birth counseling	50.7	8.1	<0.000

CONCLUSIONS: The MMC pregnant women in an HC or PO study were similar in demographics and social history except for a higher incidence of substance abuse, homelessness and domestic violence in the HC. Social and ancillary services were more frequently ordered and used in the HC.

252 FETAL HEART RESPONSE TO STRENUOUS EXERCISE IN LATE GESTATION. A. MacPhail[x], *G.A.L. Davies*[x], R. Victory[x], L. A. Wolfe[x]. School of PHE and Depts. of Ob/Gyn and Physiology, Queen's University, Kingston, ON

OBJECTIVE: To determine the fetal response to and safety of maximal maternal exercise in the third trimester.

STUDY DESIGN: Twenty-three active women with uncomplicated singleton pregnancies between 31-38 wks gestation underwent maximal exercise testing by cycling at 20W for 4 min followed by a ramp increase in work rate of 20W to exhaustion. The fetal heart rate was monitored for two consecutive 10 min segments before and after testing. Fetal heart rate characteristics were classified using NICHD guidelines. Paired Student's t-statistics were used to compare continuous variables before and after testing. Repeated measures ANOVA with the Tukey-Kramer multiple comparisons post-test was used for comparison of continuous data over the 4 time periods. Chi-squared analysis was used for comparison of ordinal data.

RESULTS: There was an increase in baseline fetal heart rate in the second post-test period (mean 145.2 beats/min ± 11.8) compared to the 2 pretest periods, (means 139.2 beats/min ± 8.7, $p<0.05$ and 138.5 beats/min ± 9.6, $p< 0.01$). There were fewer accelerations in the second post-test period (mean 1.48 ± 1.23) compared to the second pretest period, (mean 2.43 ± 1.6, $p<0.01$). Decelerations were infrequent and no differences were noted. There was an increased time to reactive post-testing (19.1 min ± 9.7) compared to pretesting, (10.6 min ± 7.3, $p<0.0001$). One undiagnosed growth restricted fetus had a bradycardia lasting 6 min which resolved. There were no abnormal neonatal outcomes.

CONCLUSIONS: Maximal third trimester maternal exertion leads to minimal changes in the fetal heart rate. Fetal bradycardic responses were not seen in normally grown fetuses, suggesting that maximal maternal exertion is safe in this group.

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253 IMPROVING PRECONCEPTION CARE. *PS Bernstein*, T Sanghvi[x], Dept. Ob/Gyn, Albert Einstein College of Medicine, Bronx, NY

OBJECTIVE: Preconception care has been identified as a critical component of prenatal care. Our objective was to improve the delivery of preconception care to all women of reproductive age attending an inner-city hospital's outpatient gynecology clinic. A secondary goal was to evaluate the knowledge and awareness of providers regarding preconception care.

STUDY DESIGN: A preliminary chart review of a convenience sample of nonpregnant women with reproductive potential who attend an inner-city hospital gynecology clinic (n=100) was conducted to evaluate delivery of preconception care, defined as screening for: family planning services, domestic violence, nutrition, and medical risk factors, medication use, appropriate counseling and use referral services. All providers in the clinic were surveyed to assess their knowledge and attitudes about preconception care. A two part intervention was then carried out: (1) a one hour lecture for all providers and (2) a standardized preconception care form inserted in all charts. A post-intervention chart review of a second convenience sample (n=100) and repeat provider survey were then conducted to evaluate the effectiveness of the two interventions.

RESULTS: Following the two-pronged intervention, there was evidence of improved delivery of preconception care. Documentation of screening in almost all categories was found to be significantly improved ($p < 0.05$). The greatest improvements were noted in complete screening for medical risk factors (from 15% to 44%), for over-the-counter and prescription medication use (from 10% to 70%, and 30% to 77%, respectively), domestic violence (from 10% to 57%), and nutrition (from 9% to 50%). However, change in provider knowledge and attitudes about preconception care was not significantly improved.

CONCLUSION: The combination of education about preconception care and the insertion of a standardized form into a patient's chart led to a clear improvement in the documentation of preconception care. Given the significance of preconception care, insertion of a standardized form should be considered to help providers deliver complete and appropriate care to their patients.

254 ABNORMAL PAP SMEAR IN PREGNANCY: CORRELATION BETWEEN CYTOLOGY, COLPOSCOPY, AND CERVICAL BIOPSIES. C. *Andronic*[x], *R. Neiger*, Dept. Ob/Gyn, Univ. of Tenn., Knoxville, TN.

OBJECTIVE: To determine whether colposcopically directed biopsies were beneficial in the management of abnormal Pap smear during pregnancy.

STUDY DESIGN: Pregnant women whose Pap smears were abnormal underwent colposcopy during pregnancy and at six weeks postpartum. Cervical biopsies were obtained when advanced

lesions were suspected. Results of antenatal colposcopic studies and cervical biopsies were compared with postpartum colposcopic evaluations and biopsies.

RESULTS: Two-hundred and twenty-two women underwent colposcopy. Of those, 75 underwent cervical biopsies. Forty-nine had biopsies both during pregnancy and at postpartum evaluation. Concordance between cervical cytology and histologic diagnosis was found in 31 cases (63%), less severe lesions were found in 10 (20%), and more advanced lesions in eight (16%). Colposcopy was judged consistent with Pap smear findings in 173 women, and overall concordance between cytology and colposcopy was 92% (204 of 222 women). Twenty-six women had cervical biopsies only during postpartum evaluation; Concordance between antenatal Pap smears and postpartum biopsies was found in 14 (54%), less severe lesions in four (15%), and more advanced lesions in eight women (31%). No invasive cervical cancer was found, and information obtained by cervical biopsies did not change management during pregnancy.

CONCLUSION: There is a high degree of concordance between Pap smear results, colposcopic findings and cervical biopsies during pregnancy. Cervical biopsies are generally unnecessary in the management of abnormal Pap smear in pregnancy.

255 ARE THERE DIFFERENCES IN FELLOWSHIP SATISFACTION, MENTORSHIP, AND THESIS COMPLETION BETWEEN NEONATOLOGY AND MATERNAL-FETAL MEDICINE FELLOWS? *A. Sciscione*, S. Pearlman[x], K. Leef[x], M. D'Alton. Division of Maternal-Fetal Medicine and Neonatology, Christiana Hospital, Newark, DE and Division of Maternal-Fetal Medicine, New England Medicine Center, Tufts University School of Medicine, Boston, MA.

OBJECTIVE: In a recently reported survey of Maternal-Fetal Medicine (MFM) fellows, 22% responded that they were not satisfied with their fellowships and that 32% could not identify a mentor on the MFM faculty. Importantly, thesis completion was significantly associated with the presence of a mentor on the faculty and fellowship satisfaction. In an effort to determine if these findings were unique to the MFM fellows, we administered a similar survey to Neonatology (NEO) fellows.

STUDY DESIGN: NEO Fellows were identified by a list from the American Board of Pediatrics. The survey submitted to the MFM fellows was sent to the NEO fellows with minor modifications. The survey focused on faculty involvement, mentorship, research time, education, and satisfaction. The survey consisted of multiple choice, Likert scale, ordinal, and categorical scale questions. Results of the NEO survey and the MFM fellows survey were compared using Chi square and Mantel-Haenezel test where appropriate. A p value of < 0.05 was considered significant.

RESULTS: Of the 304 NEO fellows, 201 responded (response rate = 66%). There were no differences in demographic characteristics between the two groups. Both groups were significantly more likely to complete their thesis if they identified a mentor ($p < 0.001$). NEO fellows were significantly more likely to identify a mentor on faculty (80% vs. 68%, $p = 0.01$) and more likely to predict thesis completion (96% vs. 68%, $p < 0.001$). NEO fellows were significantly more likely to feel they had adequate research time (83% vs. 66%, $p < 0.001$). MFM fellows were significantly more likely to feel too busy to complete research (40.1% vs. 29.9%, $p = 0.048$). There was no significant difference in fellowship satisfaction between MFM and NEO fellows (78% vs. 75%; $p = 0.13$), but both groups were significantly more likely to be satisfied with their fellowship if they had a mentor ($p < 0.001$). While there was no difference in the availability of statistical assistance or funding for research endeavors, NEO fellows were significantly more likely to have animal facilities available for research (87.8 vs. 68.8, $p < 0.001$).

CONCLUSIONS: Problems faced by fellows in MFM appear to be unique to their training when compared to NEO fellows. Identifications of a mentor is a key component of thesis completion and fellow satisfaction, and needs to be encouraged in MFM training programs.

256 DISTRIBUTION OF STUDY DESIGN IN TWO OBSTETRICS AND GYNECOLOGY JOURNALS. *EJ Rosenbush*[x], EF Funai, MJ Lee, G Del Priore[x]. Dept. Ob/Gyn, NYU School of Medicine, NY, NY.

OBJECTIVE: To classify articles, based on study design, in *The American Journal of Obstetrics and Gynecology* (AJOG) and *Obstetrics and Gynecology* (O&G).

STUDY DESIGN: One year of each journal beginning May 1997 was reviewed (excluding supplements). Articles were initially classified as clinical research, animal studies or basic science. Articles devoted to clinical research were further classified as observational or experimental. Experimental studies were subcategorized as controlled or uncontrolled. Controlled trials were further subcategorized as randomized or non-randomized. Other studies were noted and letters to the editor were excluded.

RESULTS: 469 articles were reviewed in the twelve issues of AJOG and 369 articles in O&G. AJOG dedicated 84% of articles to clinical research versus 97% in O&G ($p = <0.0001$). There were 10.7% vs. 1.1% animal studies ($p = <0.0001$) and 5.3% vs. 1.9% basic science ($p = <0.01$). In AJOG 66% of all articles were observational compared to 72% in O&G ($p = \leq 0.055$). 11% vs. 15% were experimental ($p = 0.063$). In the clinical experimental category 10.9% of all articles published in AJOG were controlled vs. 14.6% in O&G ($p = 0.103$). There were 8.8% randomized control trials in AJOG and 11.1% in O&G ($p = .252$). 2.3% vs. 4.3% were non-randomized ($p = 0.105$). 0.2% vs. 0.8% were uncontrolled ($p = 0.211$). Out of the experimental articles, 98.1% in AJOG and 94.7% in O&G were controlled ($p = 0.35$) and 1.9% vs. 5.3% were uncontrolled ($p = 0 .354$). 78.8% of the experimental articles in AJOG were randomized vs. 71.9% in O&G ($p = 0.404$). 21.2% vs. 28.1% were non-randomized ($p = 0.561$).

CONCLUSIONS: This study reveals a significant difference in the percentage of articles dedicated to clinical research between the two journals. A difference, although not significant, was found between the percentages of observational and experimental articles. Under the U.S. Preventive Services Task Force rating system, the randomized control trial is given the highest rating, that of class I evidence. The drive toward evidence-based clinical practice may not be fully supported by researchers in OB/GYN, as reflected by their submissions and subsequent publications in the major OB/GYN journals.

257 LIMITATIONS OF THE U.S. NATIONAL NATALITY STATISTICS. *IM Bernstein*, AG Fry, GJ Badger[X], Departments of Ob/Gyn and Med. Biostatistics, Univ. of VT, Burlington, VT.

OBJECTIVE: To examine and evaluate the contents of the US National Natality data set as supplied by the U.S. Center for Health Statistics to determine its usefulness as a standard for the characterization of pre-term birth weight across gestational ages.

METHODS: We examined the 1993 U.S. Natality data set. Birth weights were evaluated between 26 and 37 weeks gestation. We compared mean and median birth weights as well as birth weight distribution at each gestational age. We evaluated different definitions available within the data set for establishing gestational age to determine their relative impact on birth weight distributions. Specifically, we compared gestational age defined solely by LMP with gestational defined by LMP or clinical estimate if the clinical estimate varied by more than 2 weeks from LMP dating.

RESULTS: In the early third trimester (27-32 weeks gestation) we observed differences between the estimates of the mean and median birth weights employing last menstrual period to establish gestational age. This results from a bimodal distribution of birth weight. The cluster of birth weights at the higher end represents as many as 30 % of the birth weights at specific gestational ages. This clustering is reduced when clinical estimates of gestational age are used to establish gestational age. The correlation between the estimates of the mean and median across gestational age is greater when clinical estimates of gestational age are used. (LMP $r=0.33$, P=NS, clin. estimates $r=0.74$, $P<0.01$)

CONCLUSIONS: There appears to be considerable incorrect assignment of gestational age when the LMP is used rather than clinical estimates to establish the age at birth for newborns within the U.S. National data set. This results in many term infants being incorrectly classified as preterm, creating a bimodal distribution to preterm birth weights within select gestational age windows. Use of clinical estimates of gestational age within the data set partially corrects this mis-representation.

258 PYELONEPHRITIS & DOMESTIC VIOLENCE: ASSOCIATION FOUND *DV Coonrod*[x], AW Miller[x], RC Bay[x], LR Chambliss. Dept Ob/Gyn, Maricopa Medical Center, Phoenix, AZ.

OBJECTIVE: Domestic violence (DV) is a common and serious problem among pregnant women. DV has been associated specifically with preterm labor & abruptio placenta. We wished to assess the relationship between DV and other antepartum complications.

STUDY DESIGN: Research and nursing staff carried out a brief survey and chart review of women delivering at Maricopa Medical Center (the county hospital serving Phoenix) over an 8-month period. The survey assessed acculturation, DV in the previous year, prenatal care, STD history, demographic information and outcomes related to antepartum complications. The frequencies of risk factors and outcomes were compared by calculating relative risks and 95% confidence intervals. Logistic regression was used to control for potential confounding. Analysis was restricted to the 1,025 Hispanic and 148 White non-Hispanic) women who represented 92% of the deliveries.

RESULTS: Pyelonephritis occurred in 8.5% of victims of DV in the past year vs 1.9% of those denying this history, RR 4.4, 95% CI 1.7-11. We controlled for potential confounders (demographic factors, parity, prenatal care (PNC), substance abuse, STD history) and other antepartum complications. Only preterm labor and substance abuse were found to be correlated with DV and the relative risk estimate changed only modestly: RR from logistic regression 3.6, 95% CI 1.2-10.6. Contrary to our expectations, those with DV did not present for prenatal care later in pregnancy; the mean EGA for PNC initiation was 17 weeks for both those with and without DV.

CONCLUSIONS: In our study, DV in the last year was an independent risk factor for pyelonephritis. We theorized that victims of DV might present for PNC at a later EGA than those without DV, have untreated asymptomatic bacteriuria and present with pyelonephritis. The data did not support this conclusion. Our study is not the first to see an association between DV and UTI. A national cross-sectional study found that women who reported spouse abuse were almost twice as likely to have a history of UTI. Further investigation is needed to elucidate the mechanism behind this association. Immediate application of these findings can be made by practicing obstetricians in questioning women admitted with pyelonephritis about DV and making appropriate referrals.

259 URINARY INTERLEUKIN-8 AS A MARKER OF ASYMPTOMATIC BACTERIURIA IN PREGNANCY. *S. Shelton*, K. Kirvan[x], F. Sedor[x], W.N.P. Herbert, K. Boggess. Depts. of Ob/Gyn and Pathology, Duke University Medical Center, Durham, NC.

OBJECTIVE: While urine culture is the gold standard for the diagnosis of asymptomatic bacteriuria (ASB), a turnaround time of at least 24 hours limits its value. The need for a sensitive, yet rapid test, persists. Urinary interleukin-8 (IL-8), an inflammatory cytokine, may soon be available as a rapid, simple test. We sought to compare the usefulness of urinary IL-8 with urine dipstick analysis in the prediction of ASB in pregnancy.

STUDY DESIGN: Clean-catch urine samples were obtained for ASB detection from 104 patients with urine cultures and IL-8 levels performed in all instances. Urine dipstick results for nitrites or leukocyte esterase (LE) were available for 63 patients. IL-8 assays were performed in batch using frozen aliquots. Urinary IL-8 concentrations were determined by a chemiluminescent immunoassay.

RESULTS: Consistent with our patient population, 9 patients (8.7%) had positive urine cultures: *E. coli:* 6, *P. mirabilis:* 2, *K. pneumoniae:* 1. The median IL-8 concentration was 433 pg/ml for patients with ASB and 107 pg/ml for those without ASB. A receiver-operator characteristic curve analysis resulted in an IL-8 level of 350 pg/ml as the optimal cutoff point.

	IL-8 ≥350	Nitrite+ or LE +
Sensitivity %	78	43
Specificity %	74	73
PPV %	22	16
NPV %	97	91

CONCLUSION: Urinary IL-8 outperformed urine dipstick testing of nitrite/LE in identifying patients with ASB. Our data support the concept that IL-8 testing with an onsite technique may provide a useful tool for detecting ASB.

260 NEPHROLITHIASIS IN PREGNANCY. *Erin Butler,*[x] Eric Eberts,[x] Susan Cox, F. Gary Cunningham, Dept. Ob/Gyn, Univ. TX Southwestern Med. Ctr., Dallas, TX

OBJECTIVE: Renal sonography is reported to be helpful to confirm the diagnosis of nephrolithiasis. To ascertain the efficacy, we reviewed our experiences with nephrolithiasis complicating pregnancy and compared the radiographic test(s) used to confirm the diagnosis.

STUDY DESIGN: The outcomes of all pregnancies complicated by nephrolithiasis admitted to our hospital from 1986 to 1998 were evaluated.

RESULTS: A total of 47 women had 62 admissions for nephrolithiasis during pregnancy. Only 10 women had a prior history of nephrolithiasis. The average gestational age at diagnosis was 23 weeks. The most common presenting symptoms were flank pain and nausea. 68% had hematuria. While 80% of symptomatic episodes resolved with conservative management, 5 patients required ureteral stents, 2 percutaneous nephrostomy tubes, and 2 underwent ureteral laser lithotripsy. Radiographic tests utilized to confirm or diagnose nephrolithiasis are summarized below:

	No.	Positive	Negative	Sensitivity
Renal ultrasound	39	21	18	54%
KUB	9	7	2	77%
IVP	19	19	0	100%

CONCLUSIONS: Nephrolithiasis complicating pregnancy had an incidence of 1 in 1500 in our institution. While ultrasound should be used initially to confirm the diagnosis of stone disease, its sensitivity was only 54%. If ultrasound findings are negative, then in our hands, IVP was the most sensitive diagnostic test.

261 PREOPRERATIVE ADMINISTRATION OF INTRAVAGINAL METRONIDAZOLE FOR THE PREVENTION OF POST-CESAREAN ENDOMETRITIS: A RANDOMIZED DOUBLE-BLIND TRIAL. *L Sanchez-Ramos,* C Pitt,[x] I Delke, FL Gaudier. Department of Obstetrics & Gynecology, University of Florida, Jacksonville, FL.

OBJECTIVE: To determine the efficacy and safety of pre-operative administration of intravaginal metronidazole for the prevention of post-cesarean endometritis.

STUDY DESIGN: This double-blinded, randomized trial included patients of at least 24 weeks' gestation undergoing cesarean deliveries for various indications. Patients were randomized to receive either 5 grams of metronidazole gel intravaginally or matching placebo. All patients underwent surgical cleansing of the abdomen and most received prophylactic antibiotics after cord clamping. The main outcome variable was the incidence of post-cesarean endometritis. Patients with chorioamnionitis and/or suspected allergy to metronidazole were excluded. These results represent the data from an interim analysis.

RESULTS: Of 31 patients receiving metronidazole, 2 (6%) developed post-cesarean endometritis compared to 9 of 32 (28%) patients receiving placebo gel (OR= 0.18, 95% CI 0.03 – 0.90; P = 0.04). In addition, patients in the placebo group appeared to have a more prolonged postpartum stay. No significant differences were noted between treatment groups with respect to febrile morbidity, wound infection, or antibiotic use.

CONCLUSIONS: The preoperative administration of intravaginal metronidazole gel appears to reduce the incidence of post-cesarean endometritis.

262 THE IMPACT OF INTRAPARTUM AMNIOINFUSION IN PATIENTS WITH MECONIUM-STAINED AMNIOTIC FLUID: A META-ANALYSIS. *L Sanchez-Ramos,* FL Gaudier, J Pierce.[x] Department of Obstetrics & Gynecology, University of Florida, Jacksonville, FL.

OBJECTIVE: To analyze published randomized trials assessing the efficacy of intrapartum amnioinfusion for patients with meconium-stained amniotic fluid.

STUDY DESIGN: Randomized clinical trials (RCTs) assessing the value of intrapartum amnioinfusion in patients with meconium-stained fluid were identified using electronic databases and references cited in original studies and review articles. We calculated an estimate of the odds ratio (OR) and risk difference for dichotomous outcomes using both random and fixed-effects models. Sensitivity analysis was performed and heterogeneity was assessed.

RESULTS: Thirteen studies which included 1924 patients (950 underwent amnioinfusion and 974 controls) met study criteria.

	Amnioinfusion	Controls	OR (95% CI)
MAS*	24/950 (2.5)	83/974 (8.5)	0.28 (.17-.45)
Cesarean	184/932 (19.7)	231/951 (24.3)	0.74 (.58-.93)
Acidemia	41/348 (11.8)	90/363 (24.8)	0.41 (.27-.62)
Endometritis	33/295 (11.2)	33/317 (10.4)	1.05 (.60-1.81)
Fetal distress	38/361 (10.5)	73/369 (19.8)	0.46 (.29-.72)
Meconium below cords	27/555 (4.9)	132/576 (22.9)	0.16 (.10-.25)

* MAS = meconium aspiration syndrome. (%) OR= odds ratio

CONCLUSIONS: Amnioinfusion reduced the incidence of MAS and other adverse maternal and perinatal effects associated with meconium-stained fluid.

263 ZIDOVUDINE USE TO REDUCE PERINATAL HIV-1 TRANSMISSION: NORTHEAST FLORIDA EXPERIENCE. *I Delke,* L Sanchez-Ramos, C. Shayne Mora*. Department of Obstetrics and Gynecology, University of Florida, Jacksonville, FL.

OBJECTIVE: To determine the acceptance of and effect of the implementation of the AIDS Clinical Trials Group Protocol 076(ACTG 076) to reduce mother-to-infant transmission of human immunodeficiency virus (HIV) type I in Northeast Florida.

METHODS: This is a retrospective analysis of a cohort of 116 mothers with 124 pregnancies, and 126 infants (2 sets of twins) cared for, April 1, 1994 to December 31, 1997, after the implementation of ACTG 076. Demographic and clinical data recorded included: age, race, gestational age, history of drug abuse during pregnancy, CD4+ T-lymphocyte count, duration of rupture membranes, use of zidovudine therapy, mode of delivery, infant outcome, and HIV status of infant. These data were then compared to an existing database of 124 HIV infected mothers and 125 HIV-exposed/infected infants who delivered at same institution in the period preceding the implementation of ACTG 076.

RESULTS: Of 116 HIV-infected pregnant women who delivered during the study period, 114 ((98%) were identified prenatally. One hundred of the women (86%) were African Americans with median age of 25. Forty-five women (39%) had a history of drug abuse during pregnancy. Zidovudine therapy was used antenatally in 113 of 124 pregnancies (91%), intrapartum in 107 of 124 (85%), and in 125 of 126 infants (99%). All three components of ZDV were received by 107 of 126 (85%) mother-infants pairs. Nineteen women (15%) did not receive the intrapartum phase of ZDV therapy. The perinatal HIV-1 transmission rate decreased by 87% after implementation of ACTG 076 (24.8% to 3.2%; $p<0.0001$). The demographic and clinical characteristics of the cohorts during the two periods were similar.

CONCLUSIONS: Our results support and extend the findings of ACTG 076 protocol concerning the efficacy of ZDV use in reducing the maternal-infant HIV transmission rate and indicate that ZDV therapy is significantly effective outside the narrow limits of a controlled clinical trial.

264 VOLUNTARY INTRAPARTUM RAPID HIV TESTING FOR WOMEN WITHOUT ADEQUATE PRENATAL CARE: A DECISION ANALYSIS. *WA Grobman*[x], PM Garcia. Department of Ob/Gyn, Northwestern University Medical School, Chicago, IL.

OBJECTIVE: To determine the health and economic consequences of instituting a nationwide policy of voluntary rapid testing for HIV during labor for those women who have received inadequate prenatal care.

STUDY DESIGN: A decision-tree model was used to assess the number of pediatric HIV cases that would be averted if women who did not have the opportunity to discover their HIV serostatus during their prenatal care were offered an intrapartum voluntary rapid HIV test. This model postulated that perinatal transmission could be reduced both through the use of intrapartum and neonatal zidovudine, and through the reduced frequency of breastfeeding among women who know that they are HIV seropositive. Additional medical costs associated with the introduction of this policy were also determined. Probability and cost estimates entered into the model are based on data in the published literature. After establishing results for the base case, sensitivity analysis was performed to assess the impact of varying probability and cost variables.

RESULTS: Under base-case assumptions, a policy of intrapartum voluntary rapid HIV testing would results in 85 fewer cases of perinatal HIV transmission per year per 100,000 women without adequate prenatal care. Eighty percent of this reduction is due to the therapeutic benefit of short-course zidovudine, while 20% is due to decreased breastfeeding among women who are informed of their HIV seropositive status. The total cost savings to the medical system of this policy would be $8.9 million per year per 100,000 women without adequate prenatal care. The results of this model were most sensitive to estimates of HIV seroprevalence in the studied population, the reduction in transmission due to short-course zidovudine, the lifetime costs incurred by an infant after perinatal HIV transmission, and the extra costs incurred by a women after early diagnosis of HIV infection. However, even the variables to which the model is most sensitive continue to yield cost savings across a wide range of values.

CONCLUSIONS: In the absence of adequate prenatal care, a voluntary rapid HIV test not only allows patients to fully explore their options with regard to testing and treatment, but also has the potential to provide significant health benefits to women and children and economic benefits to the medical system.

265 EFFECT OF HIV TESTING DURING PRENATAL CARE ON THE IDENTIFICATION OF PARTURIENTS WITH HIV INFECTION. *N.M. Maydew*[x], C. Harris. Department of Obstetrics and Gynecology, University of Chicago, Chicago, Illinois

OBJECTIVE: The U.S. Public Health Service issued recommendations in 1994 that all pregnant women be offered testing for the HIV-1 antibody during prenatal care. We sought to determine if adherence to these guidelines improved HIV testing rates among women receiving prenatal care at our institution. Also, we evaluated whether this strategy of antenatal HIV testing identified all parturients with HIV infection at this hospital.

METHODS: Survey data from the MCH/HIV Integration Project was used to ascertain the proportion of prenatal patients at our clinics who were offered HIV testing, received education, accepted testing, and received results. All women who delivered infants at our hospital during Oct-Dec of 1995 and 1997 were interviewed. Those delivering in 1997 were compared to those delivering in 1995 using the Chi-square statistic. The seroprevalence of HIV-1 antibody among infants, which reflects HIV-1 infection among mothers, was determined using blood from heelsticks collected during December, 1996.

RESULTS:

Year	Test Offered	Received Education	Aware of Transmission	Aware of AZT	Accepted Testing
1995	276/377 (73%)	155/276 (56%)	134/155 (86%)	115/166 (75%)	201/377 (53%)
1997	242/275 (88%)	231/242 (95%)	219/231 (95%)	158/231 (68%)	222/275 (81%)
X^2	21.36 (p<.001)	104.85 (p<.001)	8.28 (p=.004)	1.87 (p=.17)	52.43 (p<.001)

The seroprevalence of HIV-1 in the nursery was 0.6%. Given 5710 births during 1995-1996, the number of HIV-infected mothers is estimated to be 36. 18 known HIV-infected women delivered at our hospital during that time.

CONCLUSIONS: From 1995-1997, the proportion of patients tested for HIV increased significantly. Despite >80% being tested, we identified only half of the HIV-infected women delivering at our institution using this strategy. Improved education regarding AZT prophylaxis may help to improve testing rates. Also, rapid HIV testing intrapartum could identify women at high risk for HIV infection who have not had testing but could benefit from AZT.

266 PRESENCE OF ABNORMAL VAGINAL FLORA ASSOCIATED WITH HIV-1 INFECTION IN PREGNANT WOMEN IN CENTRAL NORTH CAROLINA. R. Royce[x], *J. Thorp*, J Granados[x], D. Savitz[x]. Depts. of Epidemiology and Ob/Gyn, Univ. of NC, Chapel Hill, NC.

OBJECTIVE: Sexually transmitted diseased (STDs) affect HIV-1 infectivity. In a cross-section of pregnant women we investigated whether abnormal vaginal flora might also be associated with HIV-1 infection after adjustment for potential confounders.

STUDY DESIGN: At baseline examinations of our prospective study of preterm delivery in North Carolina, USA, we recruited 724 women in prenatal care who provided vaginal swabs for gram stain scoring of vaginal flora and interview information. Vaginal flora scores were classified as normal, intermediate, and abnormal.

RESULTS: HIV-1 prevalence was 0.8% (4/489), 1.2% (1/84), and 3.3% (5/151) among women with normal, intermediate, and abnormal vaginal flora, respectively (trend p=.03). No HIV-1 infected woman had AIDS; all were on antiretroviral medication to prevent vertical transmission. Compared to women with normal vaginal flora, the relative risk for HIV-1 infection with intermediate flora was 1.5 (95% CI 0.2, 12.9), and abnormal flora was 4.0 (95% CI 1.1, 14.9). Adjustment for sexual activity, age, ethnicity, STDs , and douching did not alter the relationship.

CONCLUSION: In a population with a relatively low HIV-1 prevalence, vaginal flora abnormalities were associated with prevalent infection. Although we cannot determine whether abnormalities in vaginal flora increase women's susceptibility to HIV-1 infection or become more common after infection, these abnormalities put HIV-1 infected pregnant women at increased risk for preterm delivery. Incidence studies are required to discern whether control of bacterial vaginosis might reduce the infectivity of HIV-1.

267 CLINICAL RISK SCORING SYSTEM FOR ANTENATAL BACTERIAL VAGINOSIS. L. Pastore[x], *J. Thorp, Jr.*, R. Royce[x], T. Jackson[x], D. Savitz[x]. Depts. of Epidemiology & Obstetrics and Gynecology, University of North Carolina at Chapel Hill, Chapel Hill, NC

OBJECTIVE: Develop a clinical risk scoring system for screening pregnant women who are at increased risk of bacterial vaginosis (BV).

STUDY DESIGN: The Pregnancy, Infection and Nutrition Study, a NC cohort of pregnant women, collected genital tract specimens, conducted interviews, and abstracted medical records. 913 women with last menstrual periods between January 30, 1995 and August 15, 1996, were eligible for this analysis. BV was evaluated by Nugent scored, Gram stained vaginal smears between 24 and 29 weeks' gestation (scores of 7-10 considered positive).

RESULTS: Overall, 18.8% of women had BV. Logistic regression adjusted analyses found 7 out of 43 potential risk factors were predictive of BV: vaginal pH > 4.5 (adjusted odds ratio (AOR)=10.7, 95% CI 7.0,16.4), sickle cell hemoglobin (AOR=2.9, 95% CI 0.3,27.2), smoking (AOR=2.1, 95% CI 1.3,3.3), African-American (AOR=2.0, 95% CI 1.3,3.0), condom use during pregnancy (AOR=1.5, 95% CI 0.9,2.5), pre-pregnancy history of BV (AOR=1.5, 95% CI 0.7-3.7), and antenatal BV (AOR=1.3, 95% CI 0.8,2.3). The scoring system weights, based on the beta coefficients, range from 1 to 6. The sensitivity and specificity of screening women with total scores of 2 or higher were 95% and 31% respectively; this would involve screening 73% of the population and 23% of those tested would be expected to truly have BV. For scores of 5 or higher, the sensitivity and specificity were 77% and 75%, respectively, 34% of the population would be tested, and 41% of those screened would be expected to truly have BV.

CONCLUSION: The scoring system identifies subgroups of women at increased risk of antenatal BV. Decision making to balance screening sensitivity and expense management can be determined by individual clinics using this scoring system.

268 CHORIOAMNIONITIS, PREGNANCY OUTCOME, AND NEURO-DEVELOPMENTAL STATUS AT AGE FIVE YEARS. *AR Goepfert*, SP Cliver[x], J Hou[x], M DuBard[x], WW Andrews, RO Davis, RL Goldenberg, Dept. of Ob/Gyn, Univ. of Alabama at Birmingham, AL.

OBJECTIVE: To determine if histologic chorioamnionitis (HCA) is associated with preterm birth (PTB), fetal growth restriction (FGR) and/or neurodevelopmental status at age 5 years.

STUDY DESIGN: Histologic evaluation of the placenta was performed at birth in 756 singleton maternal/fetal pairs who participated in a prospective longitudinal study of pregnancy outcome. 526 children were evaluated at age 5 (including tests for IQ, motor function, and psycholinguistic ability). HCA was determined based on neutrophilic infiltration in 10 sites including the chorioamnion, placenta basalis and cord. FGR was defined as <15th percentile based on Alabama standards for race, sex, and parity.

RESULTS: Sixty infants were born at <34 weeks (wks), 93 at 34-36 wks, and 603 at ≥37 wks. 163 infants had FGR and 593 were AGA. Severe HCA was more common in black vs. white women (18 vs. 11%, p=0.02), but was not influenced by maternal age or educational level. The mean gestational age (GA) at delivery was significantly lower in women with vs. those without severe HCA (34±6 vs. 38±3 wks, p=0.0001). Severe HCA was inversely proportional to delivery GA; 42% at <34 wks, 10% at 34-36 wks and 6% at ≥37 wks (p=.001). After adjusting for race, prior PTB and other risk factors, severe HCA was significantly associated with PTB at <34 wks [OR 9.98 (4.9-20.4)] but not at 34-36 wks. HCA was not associated with FGR. The mean IQ score at age 5 was not related to the presence of HCA (80.9±12 vs. 82.4 ±12, p=.2). Most measures of neurodevelopmental function at age 5 were not associated with HCA. However, in term black infants, both language ability and IQ (78.0 ± 81.3, p=.03) were lower when HCA was present at birth. Insufficient numbers of adverse perinatal outcomes (IVH, RDS, NEC) were available to correlate with HCA and there were no cases of cerebral palsy in this population.

CONCLUSION: HCA is more common in black women, is associated with lower delivery gestational age, but is not associated with FGR. In this population, in black infants born at term, HCA is associated with a small decrease in IQ at 5 years of age.

269 CHORIOAMNIONITIS IS ASSOCIATED WITH PROLONGED INTRAUTERINE FETAL HYPOXIA MEASURED BY UMBILICAL CORD BLOOD ERYTHROPOIETIN (EPO). *A. Jazayeri*, J.Tsibris[x], W. Spellacy. Depart.'s of Ob/Gyn, LSUMC, Shreveport and Univ. of South Florida, Tampa.

OBJECTIVE: To determine if clinical chorioamnionitis (CHORIO) was associated with intrauterine fetal hypoxia as measured by umbilical plasma EPO.

STUDY DESIGN: Two hundred and twenty eight samples were analyzed. Cord blood was needle aspirated and spun to separate the plasma, which was then frozen until analysis. EPO levels (mIU/mL) were measured using an ELISA kit from R&D Systems (Minneapolis, MN). Statistical analyses were done by independent t-test, ANOVA, multiple linear regressions and univariate analysis of variance using SPSS statistical package. Probability values less than 0.05 were considered significant.

RESULTS: Fetal plasma EPO (mean±SEM) was elevated in pregnancies with the clinical diagnosis of CHORIO (138±25, n=19) compared to controls (25.3±2.0, p<0.001). Stepwise multiple regression analysis using CHORIO, IUGR, meconium passage, smoking, decreased long term variability (LTV), and variable decelerations in labor showed only chorioamnionitis (p=0.012), meconium (p=0.001) and decreased LTV (p=0.001) to be associated with EPO levels. Univariate analysis of variance in this population showed CHORIO, meconium and decreased LTV to be independently associated with elevated EPO.

CONCLUSIONS: EPO is a marker for chronic fetal hypoxia and is known to be elevated in pregnancies complicated by meconium passage and abnormal fetal heart rate. An association between cerebral palsy (CP) and chorioamnionitis has been reported. Our data show elevated fetal EPO in CHORIO and thus support the hypothesis that the cause for the observed association between CP and chorioamnionitis is chronic fetal hypoxia.

270 ANTIBIOTIC ADMINISTRATION IN PATIENTS WITH PRETERM PREMATURE RUPTURE OF MEMBRANES REDUCES THE RATE OF HISTOLOGICAL CHORIOAMNIONITIS: A RANDOMIZED STUDY. A. Ovalle[x], M.A. Martínez[x], E. Kakarieka[x], R. Rubio[x], O. Valderrama[x], E. Villablanca[x], A. Fuentes[x], J. Sáez[x], *R. Gómez*. Dept. of Ob-Gyn, San Borja Arriarán Hospital; Dept. of Microbiology, University of Chile; and Dept. of Ob-Gyn, Sotero del Rio Hospital, P. Universidad Católica de Chile, Santiago, Chile.

OBJECTIVE: To determine whether antibiotic administration in patients with preterm premature rupture of membranes (PROM) is associated with a reduction in the rate of histological chorioamnionitis.

STUDY DESIGN: One hundred consecutive patients with preterm PROM and no labor between 24 and 34 weeks were invited to participate in this study. Eligible patients randomly received either clyndamycin-gentamycin for 7 days or placebo, and were managed expectantly until 35 weeks unless fetal or maternal indications developed. Microbial invasion of the amniotic cavity (MIAC) was defined as the presence of a positive amniotic fluid culture obtained by transabdominal amniocentesis. Cervicovaginal infection (CVI) was diagnosed when bacterial vaginosis or a positive culture for cervicovaginal pathogens or facultative bacteria associated with a significant increase in the white blood cell count were found. Histological chorioamnionitis was based on the polymorphonuclear leukocyte infiltration of the chorionic plate or the extraplacental fetal membranes.

RESULTS: Seventy-one patients with available histological study of the placenta were included. The effects of antibiotics on placental histology are denoted in the following table:

	Histological chorioamnionitis		
Setting	Antibiotics	Placebo	P value
All cases	16/35 (45.7%)	25/36 (69.4%)	< 0.05
MIAC or CVI	15/26 (57.7%)	24/27 (88.9%)	< 0.01
No MIAC, No CVI	1/9 (11.1%)	1/9 (11.1%)	NS

CONCLUSION: Administration of antibiotics in patients with preterm PROM is associated with a significant reduction in the incidence of histological chorioamnionitis.

271 ASSOCIATION BETWEEN INTERLEUKIN-6 IN UMBILICAL VENOUS CORD BLOOD AND HISTOLOGIC FUNISITIS. *Nihal Sukkar, MD* [x], Mahmoud Ismail, MD, Anthony Montag, MD [x], Robert Mittendorf, MD, Lynn Bentz, RN, BSN [x], Roger Hinson, MD [x]. University of Chicago, Chicago, IL. Uniformed Services, University of the Health Sciences, Bethesda, MD.

OBJECTIVE: To determine whether or not the presence of the inflammatory cytokine, interleukin-6 (IL-6), is associated with funisitis, an important histologic finding in severe umbilical cord and placental infection.

STUDY DESIGN: Ninety-four pregnant patients were admitted to the Labor and Delivery Unit at the Chicago Lying-in Hospital between 10/27/95 and 1/7/97 with preterm labor at estimated gestational age 24-34 completed weeks and estimated fetal weight < 2000 gm by ultrasound. Six patients with twin gestations were included.Venous umbilical cord blood samples were collected at the time of delivery. Levels of IL-6 were measured by the standard commercial enzyme-linked immunoassay. Values ≥ 10 pg/ml were considered elevated. All but 8 placentas underwent primary review and the diagnosis of funisitis was confirmed by a perinatal pathologist on secondary review.

RESULTS: A total of 92 umbilical cords and placentas were examined by blinded pathologists. The histologic findings were compared to the corresponding IL-6 values in venous umbilical cord blood. A statistically significant association was found between elevated venous cord IL-6, as defined, and confirmed histologic funisitis. Elevated IL-6 values were found in 14/15 (93%) patients with histologic funisitis vs. 25/77 (32%) patients without evidence of funisitis (p=<<0.001, two-sided Fisher exact test).

CONCLUSION: There is a statistically significant association between elevated levels of IL-6 in umbilical venous cord blood and confirmed histologic funisitis. This suggests that funisitis can be predicted by measuring IL-6 in venous umbilical cord blood at the time of delivery and that biochemical markers may be used to detect infectious processes in the placenta.

272 PROPHYLAXIS OF GROUP B STREPTOCOCCUS VERTICAL TRANSMISSION BY USING VAGINAL CHLOREXIDINE . *F. Facchinetti,*[x] F. Piccinini, [x]B. Mordini, [x]A. Volpe. Dept of Obstet-Gynecol-Pediat Sciences, University of Modena & Reggio Emilia, Italy.

OBJECTIVE: To investigate the efficacy of intrapartum vaginal flushings with chlorexidine (CLX) in preventing group B streptococcus (GBS) transmission to neonates.

STUDY DESIGN: Randomized controlled study. Only singleton pregnancy delivering vaginally were included. One hundred thirty-nine GBS colonized mothers at term (screened at 36-38th weeks) were randomized to receive either 140 ml CLX (0.2%) by vaginal flushings every 6hrs or Ampicillin (AMP) 2 grams IVPB q 6hrs. until delivery. Neonatal swabs were taken at birth, in 3 different sites (nasal, ear and gastric juice).

RESULTS: Seventy women were treated with AMP while 69 with CLX. Neonatal transmission was similar in the two groups (Table). No adverse reactions were recorded in the two groups.

	AMP (70 cases)	CLX (69 cases)
Age (yrs)	30.8 ± 5	29.8 ± 3.2
Delivery (wks)	39.7 ± 1.1	39.9 ± 1.1
Birthweight (gr)	3390 ± 367	3430 ± 471
Risk factors * (n°)	17 (24%)	13 (19%)
Neonates with GBS (n°)	7 (10%)	8 (12%)
GBS at 3 sites (n°,)	0	1 (2%)
Neonatal sepsis (n°)	0	0

*PROM >12hrs, labor > 8hrs, temp. > 38°C

CONCLUSIONS: Intrapartum vaginal flushings with CLX in colonized mothers show the same efficacy of AMP in preventing GBS vertical transmission of GBS. These data allow to evaluate such treatment in a larger multicentre trial in order to reach definite conclusions.

273 GROUP B STREPTOCOCCUS (GBS) SCREENING: DOES THE CENTER FOR DISEASE CONTROL (CDC) PROTOCOL WORK? *G. Gilson,* B. Gordon[x], K. Bekes[x], L. Silva[x], H. Axtell[x], L. Curet. Dept. Ob/Gyn, Div. MFM, Univ. of NM, Albuquerque, NM.

OBJECTIVE: To investigate the efficacy of the CDC protocol for the prevention of early onset neonatal GBS sepsis.

STUDY DESIGN: A study population of 2563 mother-infant pairs from the university hospital prenatal clinic underwent rectovaginal cultures for GBS screening at 35-37 weeks gestation. GBS positive (+) mother-infant pairs were compared to a matched cohort of GBS negative (-), and GBS status unknown (unk) mother-infant pairs from the satellite clinics. GBS(+) women were treated intrapartum with intravenous aqueous penicillin G. Women of unknown carrier status were only treated intrapartum if they had a risk factor for GBS sepsis. Principal outcome variables included incidence of cases of neonatal sepsis with a central culture (blood, urine, or CSF) (+) for GBS, and incidence of cases of suspected GBS sepsis (clinical picture of GBS sepsis with (-) cultures). Univariate ANOVA and Fisher's exact test were used to compare groups.

RESULTS: The prevalence of GBS(+) women was 10.5% (n=263). These women and their infants were matched with 263 GBS(-) mother-infant pairs, as well as with a sample of 500 GBS unk pairs. There was no significant difference across groups as regards demographics, length of rupture of membranes, or maternal peripartum infections. No cases of documented GBS sepsis occurred in the infants of the screened women, but 4 cases occurred in the GBS unk group, only one of whom had a risk factor. Cases of suspected sepsis were not more common in the screened population (7 cases, 3.0%) when compared to the unscreened population (12 cases, 2.6%), nor was infant length of stay different. One case of neonatal E.coli sepsis occurred, in the GBS unk group. Adherence to the protocol was 85.8%, a mean of 1.4±0.8 doses of penicillin/patient was given, and no adverse drug reactions occurred.

CONCLUSIONS: GBS screening at 35-37 weeks, with intrapartum penicillin treatment of (+) carriers , decreased the incidence of neonatal GBS sepsis, did not result in pediatric overtreatment, and appears to have advantages over treatment based on risk factors alone.

274 GROUP B STREP AT GRADY MEMORIAL HOSPITAL: A RETROSPECTIVE EVALUATION. *M. Cameron*[x] T Feng, BD Raynor. Dept. Gyn/Ob, Emory University, Atlanta, GA.

OBJECTIVE: The CDC recommends intrapartum chemoprophylaxis to minimize maternal to fetal Group B Streptococcal transmission and two protocols are considered appropriate. The first protocol recommends that all pregnant women be screened at 35-37 weeks for anogenital GBS colonization. The second protocol recommends intrapartum antibiotics based on maternal risk factors (i.e. delivery <37 weeks gestation; ROM ≥18 hours; intrapartum T ≥38°; previous child affected by GBS infection, GBS bacteriuria). In September 1994, a risk-factor based protocol for the prevention of early onset GBS disease was enacted. The purpose of this study is to evaluate the impact this protocol had on the incidence of early-onset GBS disease and to assess its efficacy as a prevention strategy. A secondary objective will be to evaluate problems associated with the protocol.

STUDY DESIGN: Between 1990 and 1997, all positive blood cultures and cerebrospinal fluid cultures in neonates < 7 days of age were identified via the laboratory computer system. The corresponding neonatal and maternal medical record numbers were also identified and the medical records for mothers and neonates delivering after the implementation of the protocol in September 1994 were reviewed.

RESULTS: Fifty-three infants were born with early-onset GBS disease. Of these, only 42 of the 53 maternal records were available for review. Of the 42 mothers, 25 (60%) had risk factors. Of the 25 mothers with risk factors, 18 (72%) received intrapartum antibiotics; 7 (28%) should have but did not. None of the 53 infants died.

CONCLUSION: The 1997 incidence of 2.4 per 1,000 live births reflects a 48% decrease from the average annual incidence of early onset GBS disease occurring before September 1994. The protocol failure rate was 18/25 (72%) and the protocol violation rate was 7/28 (28%). Further study is needed to identify and correct factors associated with protocol violations and failures when using a risk-factor based protocol.

275 GROUP B STREP RESISTANCE TO ANTIBIOTICS AND PERIPARTUM OUTCOMES. *J. Piper,* T. Wen, W. Peairs[x]. Dept. Ob/Gyn, UTHSC, San Antonio, TX.

OBJECTIVE: Emerging antibiotic resistance among GBS strains has been reported. We sought to determine the incidence of antibiotic resistance in our inner-city Hispanic population and evaluate peripartum infectious morbidity from resistant strains.

STUDY DESIGN: All GBS isolates identified by the University Hospital laboratory from March, 1998 to the present were analyzed for sensitivity to penicillin G, ampicillin, clindamycin, erythromycin, and cephalothin utilizing disk diffusion and minimal inhibitory concentration (MIC) by serial dilution. Resistance was defined by standard criteria. Maternal and neonatal outcome data were obtained upon delivery.

RESULTS: 120 GBS isolates have been analyzed thus far, with no isolates found to be resistant to penicillin G, ampicillin or cephalothin by either technique. Clindamycin resistance was identified in 3 isolates (2.5%) by both disk diffusion and MIC. Erythromycin resistance was noted in 12 isolates by disk diffusion and 13 isolates by MIC for a total of 14 isolates (12%) with evidence of erythromycin resistance. Overall, 14 of the 120 isolates (12%) had evidence of antibiotic resistance (all clindamycin resistant isolates were also erythromycin resistant). Resistance was identified in both genital (10/85, 12%), and urinary (4/35, 11%) isolates. We have not yet identified neonatal sepsis due to failure of antibiotic prophylaxis in cases with resistant GBS (intraamniotic infection with previable delivery was noted in one case).

CONCLUSIONS: Resistance to clindamycin and/or erythromycin can be identified in GBS isolates from pregnant women. Clindamycin use for GBS prophylaxis may provide inadequate coverage. Alternative prophylaxis schemes should be considered for penicillin-allergic women.

276 GENOMIC CHARACTERIZATION OF VAGINAL GROUP B BETA-HEMOLYTIC STREPTOCOCCI BY PULSED-FIELD GEL ELECTROPHORESIS. *K. D.Benson*[x], H.J.Willenberg[x], A.J.Degnan[x], J. M.Thornbery[x], J.B.Luchansky[x], H.H.Kay. Depts. of Ob/Gyn, Pathology, and Food Research Institute, Univ. of Wisconsin, Madison, WI.

OBJECTIVE: Management protocols for vaginal group B beta-hemolytic streptococci (GBS) infection during pregnancy focus on treatment after infection is identified.There is more to be learned about the epidemiology of these infections. In this study, we investigated pulsed-field gel electrophoresis of GBS strains from pregnant patients to further characterize clinically recovered organisms.

STUDY DESIGN: Vaginal strains of GBS were recovered from 9 pregnant patients (3 preterm labor, 4 preterm premature rupture of membranes, 2 antenatal screening) in the third trimester in standard fashion and grown on selective Todd Hewitt broth. Isolates were molecularly characterized by contour clamped homogeneous electric field pulsed-field gel electrophoresis (CHEF/PFGE) with the rare cutting restriction enzyme *Xbal*.

RESULTS: Analyses by CHEF/PFGE revealed that the 9 strains displayed 7 distinct genomic fingerprint profiles. Two isolates were indistinguishable and very similar in clonality to a third isolate. Clinical data did not reveal shared sources for these 3 patients or for the other 6 patients suggesting there may be a limited number of clonal types responsible for the majority of clinical infections.

CONCLUSIONS: We conclude that CHEF pulsed-field gel electrophoresis is an efficient, reproducible, and highly discriminatory method for subtyping GBS and will be a valuable method for epidemiologic studies of GBS infection during pregnancy.

277 ANTIBIOTIC CHEMOPROPHYLAXIS FOR GROUP B STREP IS NOT NECESSARY WITH ELECTIVE CESAREAN SECTION AT TERM. *R.M. Ramus*, D.D. McIntire[x], G.D. Wendel, Jr. Dept. Ob/Gyn, Univ. Texas Southwestern Medical Center, Dallas, TX.

OBJECTIVE: Neonatal early onset group B strep (GBS) infection is the result of perinatal transmission in women colonized with the organism. Presently two different strategies (risk based, or culture based) are recommended to prevent GBS infection. This study was performed to determine the incidence of GBS in a large population of women delivered at term by elective cesarean section (C/S) that did not receive antibiotic chemoprophylaxis.

STUDY DESIGN: The obstetrical database at Parkland Memorial Hospital was analyzed from 1988 to 1997 to identify women that underwent elective C/S. Exclusion criteria included the presence of labor, cervix > 4 cm dilated, ruptured membranes, or gestational age < 37 weeks. A risk based approach for GBS chemoprophylaxis was utilized, so none of the patients in this study received preoperative antibiotics. Confidence intervals were calculated using the binomial distribution.

RESULTS: Over the study period 143,639 deliveries were performed; 3,546 (2.5%) met criteria. A total of 3,590 infants were delivered. There was one infant with culture proven sepsis in the nursery (nosocomial infection by methicillin resistant *Staph. aureus*), and two neonatal deaths. Thirty infants were diagnosed with pneumonia; 19 required supplemental oxygen while receiving therapy. None of these infants were found to have GBS (95% CI 0.0 - 0.1%). Using the colonization rate in our population we would expect approximately 539 (15%) of these women undergoing elective C/S to be GBS carriers. Therefore the observed attack rate in colonized women was 0.0%. (95% CI 0.0 - 0.7%).

CONCLUSIONS: In a large population of women at term undergoing elective C/S we were unable to demonstrate any GBS infection or associated morbidity. These data suggest that patients do not require chemoprophylaxis at the time of elective C/S.

278 CONGENITAL SYPHILIS: THE INFLUENCE OF MATERNAL STAGE OF SYPHILIS ON VERTICAL TRANSMISSION. *J.S. Sheffield*, G.D. Wendel, Jr., F. Zeray,[x] N.K. Leos,[x] P.J. Sanchez,[x] Depts. Ob/Gyn & Pediatrics, Univ. TX Southwestern Med. Ctr., Dallas, TX

OBJECTIVE: To describe the relationship between untreated maternal syphilis and perinatal transmission according to clinical stage at delivery.

STUDY DESIGN: Prospective cohort analysis from Jan. 1, 1988 to July 1, 1998. Women delivered with a reactive serology for syphilis and who had received no prior treatment were evaluated and clinically staged by one investigator. Infants had physical examination, long bone radiographs, and laboratory testing (CSF, CBC with platelets) performed. In addition, infants had specific IgM immunoblotting, PCR and/or rabbit infectivity testing for *T. pallidum*. Congenital syphilis was diagnosed if any part of the evaluation or autopsy findings were abnormal.

RESULTS: 428 women were identified over the 10 year study period. Overall, 174 (41%) liveborn and stillborn infants had evidence of congenital syphilis. The rates of congenital syphilis were higher for early syphilis (136 of 277; 49%) compared to late syphilis (37 of 151; 25%).

	Early Syphilis			Late Syphilis	
Congenital syphilis	Primary n=35	Secondary n=65	Early latent n=177	Unknown duration n=111	Late latent n=40
Stillbirth	1 (3)	13 (20)	30 (17)	4 (4)	2 (5)
Liveborn	9 (26)	25 (39)	58 (33)	28 (25)	3 (8)
Total	10 (29)	38 (59)	88 (50)	32 (30)	5 (13)

Reported as n (%).

CONCLUSIONS: Untreated maternal syphilis continues to cause significant adverse pregnancy outcomes and neonatal morbidity with high rates of stillbirths and congenital infection. Early stage disease has the highest transmission rates possibly secondary to higher maternal spirochetemia. These findings support the need for prenatal care, serologic screening and treatment to prevent adverse outcomes.

279 DIAGNOSIS OF CONGENITAL TOXOPLASMOSIS IN THE NEONATAL PERIOD: A MULTICENTER STUDY. *A. Naessens*[1x], A. Pollak[2x], M. Lappalainen[3x], B. Stray-Pedersen[4x], JM. Pinon[5x], A. Decoster[6x], E. Petersen[7x], W. Foulon;[1]. Free university Brussels[1], University of Vienna[2], University of Helsinki[3], University of Oslo[4], University of Reims[5], University of Lille[6], Statens Serum Institute Copenhagen[7]

OBJECTIVE: To evaluate different laboratory parameters to diagnose children with congenital toxoplasmosis (CT) in the neonatal period.

STUDY DESIGN: Data from 294 patients with a proven seroconversion for Toxoplasma gondii during pregnancy were analyzed in a retrospective multicenter study. The following parameters were evaluated to diagnose CT: IgM and IgA antibodies in cord blood and in neonatal blood and cultures for the parasite in placenta and in cord blood. Definite diagnosis of CT was defined as the persistence of IgG in the child at 1 year of age.

RESULTS: 93 out of the 294 children were found to be congenitally infected. Sensitivity, specificity, positive and negative predictive value are summarized in the table.

	SE	SP	PPV	NPV
Placenta culture	44.8	100	100	78.4
Cord blood culture	16	100	100	62.5
Cord blood IgM	41.2	96.2	84.8	75.8
Cord blood IgA	63.8	91.8	85.7	76.7
Neonatal blood IgM	43	99.3	97.4	75
Neonatal blood IgA	65.6	99	97.7	82.5

CONCLUSION: Cultures of the placenta and of cord blood are less sensitive parameters for early diagnosis of CT than the serological markers; they have, however, a specificity of 100%. Within the serological parameters we found IgA to be more sensitive than IgM. Cord blood serology is more subjected to false positive results than neonatal blood.

280 LOW LEVELS OF NATURAL KILLER CELLS IN PREGNANT WOMEN TRANSMITTING TOXOPLASMA GONDII. G. Nigro*, J.J. Piazze, V. Brancato, E. Marchiani, U. Bartman*, *M.M. Anceschi*, E.V. Cosmi. 2nd Inst. Ob/Gyn, Institute of Pediatrics*, University "La Sapienza" of Rome, Italy.

OBJECTIVE: To evaluate the role of cell-mediated immunity in the maternal-fetal transmission of Toxoplasma gondii .

STUDY DESIGN: Seventeen pregnant women with primary T. gondii infection, in seven of whom fetal infection occurred, were subjects of this study. Eighteen healthy pregnant women were followed-up as controls.

RESULTS: Fetal outcome was uneventful in six women treated early in pregnancy with spiramycin, while a stillbirth by T. gondii encephalitis occurred in the offspring of one patient who started therapy at 34 weeks' gestation. All patients who transmitted T. gondii showed significant changes in the mean levels of immune cells. The most prominent finding was a significantly lower level of natural killer (NK) cells in the mothers transmitting T. gondii to the fetus compared to non-transmitters and controls both in the number of NK (99.7 [71.8-107.5]/μl versus 320.9 [307.9-356.4]/μl and 172.1 [122.4-213.3]/μl; median [25°-75°] $p<0.001$) and in percentage of NK cells (4.0±1.5% versus 13.2±2.3% and 10.2±3.4 %; mean±S.D. $p<0.001$).

CONCLUSIONS: Although limited by the small number of patients, our data suggest that the assessment of NK cells may be considered as a prognostic marker of primary T. gondii infection in pregnancy.

281 ASSOCIATION OF UREAPLASMA UREALYTICUM WITH PRETERM BIRTH AND ADVERSE NEONATAL OUTCOME. *PY Ling*x, B Killelea[x], T Rosenkrantz[x], N Hussain[x], J Clive[x], WA Campbell. Div of MFM, Dept of Ob/Gyn, and Div of Neonatology, Dept of Pediatrics, Univ of CT Health Center, Farmington, CT.

OBJECTIVE: To investigate the relationship between genital *Ureaplasma urealyticum* (Uu) in pregnancy and adverse neonatal outcome.

STUDY DESIGN: Data was retrospectively collected from all patients with preterm birth associated with preterm premature rupture of membranes (PPROM) or preterm labor (PTL) between 1/93 and 12/97. Maternal data included indication for and gestational age (GA) at admission, Uu and other genital culture results, amniotic fluid culture results and indication for delivery. Neonatal data included GA and weight at birth, Apgar scores, endotracheal Uu culture result, bronchopulmonary dysplasia (BPD), days in neonatal intensive care unit (NICU) and discharge survival. Placental histology was reviewed. Statistical analysis included Student t test and χ^2, with $p<.05$ considered significant.

RESULTS: There were 316 consecutive women with PPROM and/or PTL who had preterm birth during the study period. Genital Uu cultures were performed in 267 patients, of which 51.3% were positive.

	Positive Uu n=137	Negative Uu n=130	p
GA on admission (weeks)	30	30.9	NS
GA at delivery (weeks)	30.4	31.1	NS
Other positive genital cultures, n(%)	55(40.1%)	29(22.3%)	0.002
Birthweight (grams)	1613	1672	NS
BPD, n(%)	34(24.8%)	22(16.9%)	NS
Days in NICU	50.3	35.7	0.024
Discharge survival, n(%)	124(90.5%)	127(97.7%)	0.01
Histologic chorioamnionitis, n(%)	57(41.6%)	34(26.1%)	0.007

CONCLUSIONS: In cases of PPROM and/or PTL resulting in preterm birth, genital Uu colonization is associated with significant neonatal risks. There is an increased risk for other genital infections and histologic chorioamnionitis, as well as longer NICU length of stay and a decrease in discharge survival.

282 EVIDENCE OF A ROLE FOR HUMAN NEUTROPHIL COLLAGENASE (MMP-8) IN PREMATURE RUPTURE OF THE MEMBRANES. R. Romero, N. Athayde[x], E. Maymon[x], *S.S. Edwin*[x], R. Gomez, P. Pacora[x], B.H. Yoon[x]. The Perinatology Research Branch, NICHD/NIH, Bethesda, MD and the Department of Obstetrics and Gynecology, Wayne State University, Detroit, MI

OBJECTIVE: The mechanisms by which intrauterine infection leads to membrane weakening and rupture are poorly understood. Matrix metalloproteinases (MMPs), a family of potent enzymes that degrade components of the extracellular matrix, have been implicated in rupture of membranes. Collagen type I provides the main tensile strength of the fetal membranes. MMP-8 or neutrophil collagenase degrades interstitial collagens, acting preferentially on collagen type I. The aim of this study was to determine if premature rupture of membranes (PROM), intraamniotic infection and labor are associated with increased amniotic fluid (AF) concentrations of MMP-8.

STUDY DESIGN: A cross-sectional study was designed with women in the following categories: 1) midtrimester (n=25); 2) preterm PROM in the presence and absence of intraamniotic infection (n=52); 3) preterm labor (PTL) in the presence and absence of intrauterine infection (n=63); 4) term in the presence and absence of labor (n=50); and 5) term PROM (n=40). AF was collected by transabdominal amniocentesis. AF MMP-8 concentrations were determined using a sensitive and specific immunoassay (R&D Systems).

RESULTS: 1) Women with preterm PROM in the absence of infection had significantly higher AF MMP-8 concentrations than those with PTL and intact membranes who delivered at term (preterm PROM median 31.6 ng/ml; range 0.06-1040 ng/ml vs. PTL median 15.75 ng/ml; range 0.06-320.9 ng/ml; $p<0.05$); 2) Women in labor at term had higher median AF MMP-8 concentrations than those not in labor (labor median 16.4 ng/ml; range 0.33-362 ng/ml vs. no labor median 3.3 ng/ml; range 0.06-38.6 ng/ml; $p=0.005$); 3) Patients with PTL leading to preterm birth had higher median AF MMP-8 concentrations than those with PTL who delivered at term (median 33.3 ng/ml; range 0.12-1650 ng/ml vs. median 3.9 ng/ml; range 0.06-320.9 ng/ml; $p<0.05$, respectively); and 4) Intraamniotic infection in women with both intact membranes and rupture of membranes was associated with a higher median AF MMP-8 concentration than those with similar clinical conditions but with sterile AF.

CONCLUSIONS: 1) Preterm PROM, parturition (term and preterm) and intrauterine infection are associated with a significant increase in the bioavailability of neutrophil elastase; and 2) MMP-8 may play a role in preterm PROM.

283 OLIGOHYDRAMNIOS IN PRETERM PREMATURE RUPTURE OF MEMBRANES IS ASSOCIATED WITH AN INTENSE FETAL, AMNIOTIC AND MATERNAL INFLAMMATORY RESPONSE BUT NOT FETAL ACIDEMIA. *B.H. Yoon*, Y.A. Kim[x], R. Romero, J.S. Park[x], J.K. Jun[x], J.C. Kim[x], G.J. Kim[x], K.S. Kim[x], H.C. Syn[x]. Department of Obstetrics and Gynecology, Seoul National University Hospital, Seoul, Korea.

OBJECTIVE: To determine whether oligohydramnios in preterm premature rupture of membranes (PROM) is associated with evidence of a fetal, maternal and intraamniotic inflammatory response or the presence of fetal acidemia.

STUDY DESIGN: Amniotic fluid index (AFI) was measured before amniocentesis in patients with preterm PROM. Fifty-nine patients who delivered preterm newborns (gestational age≤35 weeks) within 3 days of amniocentesis were studied. Amniotic fluid (AF) was cultured for aerobic and anaerobic bacteria as well as mycoplasmas. The intensity of the inflammatory response was evaluated by AF concentrations of interleukin-6 (IL-6), interleukin-1β (IL-1β), tumor necrosis factor-α (TNF-α), AF white blood cell (WBC) count, histologic chorioamnionitis, and IL-6 concentrations of umbilical cord plasma at birth. Cytokines were measured by specific immunoassays.

RESULTS: Thirty-two percent (19/59) of patients had an AFI of ≤ 5 cm. Patients with an AFI of ≤ 5 cm had evidence of an intrauterine inflammatory response in the amniotic, maternal and fetal compartments more frequently than those with an AFI > 5 cm (see table). However, oligohydramnios was not associated with fetal acidemia.

	AFI > 5cm (n=40)	AFI ≤ 5 cm (n=19)	P value
(+) AF culture	30% (12/40)	79% (15/19)	<0.0001
(+) histologic chorioamnionitis	69% (24/35)	100% (17/17)	<0.05
AF IL-6 (ng/ml)*	3.0 (0.001-115.2)	13.5 (0.2-142.2)	<0.05
AF IL-1β (pg/ml)*	36.6 (0-2075)	348.0 (0.7->80000)	<0.005
AF TNF-α (pg/ml)*	11.2 (0-1305.3)	131.9 (0-1600)	<0.05
AF WBC (cells/mm^3)*	64 (0-2479)	437.5 (0-19764)	0.06
IL-6 in cord plasma (pg/ml)*	9.1 (0-5211.4)	49.7 (4.4-7400)	<0.01
Umbilical artery pH	7.23 0.13	7.27 0.12	NS

*Values are median and range

CONCLUSION: Oligohydramnios in preterm PROM is associated with an inflammatory response in the fetal, amniotic and maternal compartments.

284 A FETAL SYSTEMIC INFLAMMATORY RESPONSE IS AN INDEPENDENT RISK FACTOR FOR THE DEVELOPMENT OF BRONCHOPULMONARY DYSPLASIA. *B.H. Yoon*, R. Romero, J.S. Park[x], J.C. Kim[x], G.J. Kim[x], K.S. Kim[x], J.K. Jun[x], Y.A. Kim[x], B.I. Kim[x], H.C. Syn[x]. Department of Obstetrics and Gynecology, Seoul National University Hospital, Seoul, Korea.

OBJECTIVE: Our purpose was to test the hypothesis that a systemic fetal inflammatory response is a risk factor for the subsequent development of bronchopulmonary dysplasia (BPD) in preterm newborns.

STUDY DESIGN: The relationship between interleukin-6 (IL-6) concentrations in umbilical cord plasma at birth and the occurrence of BPD was examined in 198 preterm births (25 to 34 weeks). BPD was diagnosed by criteria previously described (J. Pediatrics: 1979:95:819). IL-6 was measured by a highly sensitive specific immunoassay. Logistic regression was used for statistical analysis.

RESULTS: 1) Newborns who developed BPD had a significantly higher median IL-6 concentration in umbilical cord plasma at birth than those who did not develop BPD [median 62.9 (0.3-6150) pg/ml vs median 7.1 (0-19,230) pg/ml; p<0.01]; 2) The difference in median IL-6 in umbilical cord plasma between the two groups remained significant after adjusting for the effect of gestational age at birth (odds ratio 3.43, 95% confidence interval 1.28-9.16).

CONCLUSION: An elevated IL-6 concentration in umbilical cord plasma at birth is an independent risk factor for the development of BPD. These data support the concept that the injury responsible for BPD in a subset of neonates may begin before birth.

285 EXPECTANT MANAGEMENT OF PPROM: THE RELATIONSHIP BETWEEN CORD BLOOD GASES AND CHORIOAMNIONITIS. *E.T. McKinney*, for the NICHD MFMU Network, Bethesda, MD.

OBJECTIVE: To correlate the relationship between clinical chorioamnionitis, neonatal sepsis and cord blood gases during expectant management of preterm premature rupture of membranes at 24-32 weeks' gestation.

STUDY DESIGN: We analyzed data from 403 pregnancies complicated by PPROM at 24^0-32^0 weeks' gestation who were enrolled in a multicenter, placebo-controlled trial of pregnancy prolongation using antibiotic therapy. Patients assigned to antibiotics were to receive 2 days of intravenous ampicillin and erythromycin followed by 5 days of oral amoxicillin and erythromycin base. Women with positive GBS cultures received a 7-day course of oral ampicillin in addition to their assigned study medications. Only singleton patients for whom at least one cord blood gas determination was obtained were studied (367 had arterial, 345 had venous and 107 had unspecified vessel measurements). Outcome data included the impact of clinical chorioamnionitis on cord blood gases, as well as correlation between cord gases and early neonatal sepsis (≤72 hrs), gestational age at delivery, and 1 and 5 minute Apgar scores. Statistical analyses included ANOVA, and linear and logistic regression analysis.

RESULTS: 126 women (31.3%) developed chorioamnionitis and 25 (6.2%) infants developed early neonatal sepsis. Using multivariate analysis, the presence of chorioamnionitis was significantly associated with higher frequency of infants with Apgar scores <5 at 1 minute (O.R. 3.30, 95% C.I. 2.06-5.29) and <5 at 5 minutes (O.R. 2.22, 95% 1.16-4.28). Cord blood gases by presence of chorioamnionitis are described below.

	Amnionitis	No Amnionitis	P Value*
Arterial pH	7.25±0.08	7.29±0.10	0.0001
Venous pH	7.33±0.07	7.34±0.08	0.039
Arterial $_{pCO2}$	50.27±12.8	42.72±13.93	0.036

*adjusted for use of antibiotics and GBS culture at randomization.

Using regression analysis to control for antibiotic use and GBS status revealed a significant correlation between arterial pH and gestational age at delivery (p=0.002) as well as between pH and Apgar scores at 1 and 5 minutes (p=0.0001). Similar correlation was present between arterial pCO_2 and Apgar scores at 1 (p=0.001) and 5 minutes (p=0.0001). In addition, there was a significant correlation between neonatal sepsis and arterial pH (p=0.012) and arterial bicarbonate (p=0.009).

CONCLUSION: Amnionitis is associated with fetal acidemia, which correlates with lower Apgar scores and neonatal sepsis.

286 ELEVATED AMNIOTIC FLUID LEVELS OF SOLUBLE NUCLEOSOME IN INTRA-AMNIOTIC INFECTION. *C.D. Hsu*, L.C. Lu[X], E. Meaddough[X], K. Aversa[X], R. Bahado-Singh, R.I. Liang[X], J.A. Copel. Dept. OB/GYN, Yale Univ. School of Medicine, New Haven, CT.

OBJECTIVE: The relationship between apoptosis and infection has recently been reported. Nucleosomes are the end products of DNA fragmentation during apoptosis. We sought to compare amniotic fluid (AF) soluble nucleosome (sNucleosome) in patients with and without intra-amniotic infection (IAI).

STUDY DESIGN: Sevnty-four AF specimens were obtained from an AF bank at our institution. IAI was defined as the presence of a positive AF culture. Twenty-eight specimens were from patients with IAI and 46 were not. AF tests for Gram stain, glucose, leukocytes, and creatinine (Cr) were performed. AF sNucleosome levels were determined by an enzyme immunoassay, and normalized by AF Cr levels. Statistical analyses were performed using student's t-test and Pearson correlation coefficient. Data are expressed as mean ± SE.

RESULTS: There were no significant differences in maternal age, gestational age, parity and race between patients with and without IAI. The mean level of AF sNucleosome was significantly higher in IAI than that of without IAI (48.1±21.3 vs. 0.0±0.0 U/mg Cr, P=0.0049). The AF nucleosome levels were positively correlated with AF neutrophil counts, and negatively correlated with AF glucose levels.

CONCLUSIONS: Although it is unclear how the production or secretion of sNucleosomes in AF, leukocytes may be one of the sources for these findings. Measurements of AF sNucleosomes may be of diagnostic, prognostic or pathogenic importance in IAI.

287 AMNIOTIC FLUID SOLUBLE FAS LEVELS ARE ELEVATED IN INTRA-AMNIOTIC INFECTION (IAI). *C.D. Hsu*, L.C. Lu[X], H. Basheera[X], K. Aversa[X], R.O. Bahado-Singh, D.C. Jones, S. Hong[X], J.A. Copel. Dept. Ob/Gyn, Yale University School of Mediccine, New Haven, CT.

OBJECTIVE: Fas, a TNF receptor superfamily, can induce apoptosis in sensitive cells. It has been reported that soluble Fas (sFas) was elevated in patients with septicemia. We sought to examine the levels of sFas in the amniotic fluid (AF) of patients with and without IAI.

STUDY DESIGN: Forty-two AF specimens were obtained from an AF bank at our institution. IAI was defined as the presence of a positive AF culture. Twenty-one specimens were from patients with IAI and 21 were not. AF tests for Gram stain, glucose, leukocytes, and creatinine (Cr) were performed. AF sFas was determined by an enzyme immunoassay, and normalized by AF Cr levels. The two-tailed t-test and linear regression and correlation were used for statistical analyses. Data are expressed as mean ± SE.

RESULTS: There were no significant differences in maternal age, gestational age, parity and race between the two groups. The mean AF sFas was significantly higher in IAI than that of without IAI (5.0±0.8 vs. 2.0+0.3 U/ml, p=0.001). After normalizing to AF Cr, IAI also had significantly higher mean sFas/creatinine than that of without IAI (361.0±64.3 vs 148.3 ±30.7 U/mg Cr, p=0.005). AF sFas and sFas/Cr were positively correlated with AF leukocytes (r=0.65, p<0.0001; and r=0.60, p<0.0001, respectively), and negatively correlated with AF glucose (r=-0.34, p=0.03; and r=-0.37,p=0.02, respectively).

CONCLUSIONS:Although it is unclear how the production or secretion of sFas into amniotic fluid, leukocytes may be one of the sources for these observations. Whether measurements of sFas in AF may be of diagnostic and prognostic importance awaits further investigation.

288 NEONATAL BACTERIAL RESISTANCE FOLLOWING ANTIBIOTIC PROPHYLAXIS FOR PRETERM PREMATURE RUPTURE OF MEMBRANES. *M.J. Lee*, M. Caprio[x], K. Elo[x], E. Scott[x], R. Wein[x], E.F. Funai. Dept. OB/GYN, New York University, New York, NY.

OBJECTIVE: To determine incidence of multi-drug resistant isolates in neonates exposed to antibiotic prophylaxis used in expectant management of preterm premature rupture of membranes (PPROM).

METHODS: All pregnant women and their offspring delivered between 1996-7 with PPROM were identified. Maternal and neonatal medical records were reviewed for data including latency period; number, type, and duration of antepartum antibiotic administration; results of neonatal cultures and sensitivities; duration of postnatal antibiotic therapy; and survival. Antibiotic regimens including azithromycin and/or piperacillin were defined as extended-spectrum antibiotics (ESA). Categorical variables were analyzed by Fisher's exact test and continuous variables were compared by t-test.

RESULTS: 24 gravidas with 24 offspring with PPROM occurring between 18-35 weeks were reviewed. Median birthweight and EGA at delivery were 1842g and 32 weeks, respectively. All received at least one prophylactic antibiotic; 83% pregnancies were exposed to 2 or more drugs. 83% women received antenatal corticosteroid prophylaxis. At least one organism was isolated in 29% of neonates. 6/24 infants grew out bacteria that demonstrated mutli-drug resistance, eg. piperacillin, ciprofloxacin, and oxacillin. The use of ESA was associated with a moderate increase in latency period (6 vs. 13 days, p=0.06), but also with increased neonatal isolation of drug-resistant bacteria (Fisher's p=0.05). Two neonates expired from sepsis (EGA of 24 and 34 weeks).

CONCLUSIONS: The use of ESA in PPROM is associated with isolation of multi-drug resistant organisms in the neonatal period and should be used with caution in older pregnancies in which the benefit of prolonging latency may not outweigh the complication of sepsis from drug resistant organisms.

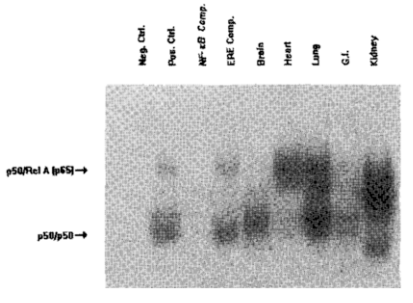
289 NUCLEAR FACTOR KAPPA B, A TRANSCRIPTIONAL ACTIVATOR OF PROINFLAMMATORY CYTOKINES, IS EXPRESSED AND ACTIVATED IN RABBIT FETAL TISSUES DURING INFECTION LEADING TO PRETERM PREGNANCY LOSS. *JK Davies*, S Lee, J Eskens, RS McDuffie, RS Gibbs, and KK Leslie. Dept. of Ob/Gyn, Univ. of Colorado, Denver, CO.

OBJECTIVE: Nuclear Factor kappa B (NFkappaB), a dimeric intracellular transcription factor thought to be a primary regulator of activation of the proinflammatory cytokines, induces the expression of TNF-alpha, IL-1, and IL-6. Fetal tissue damage from such cytokines has been implicated in the pathogenesis of cerebral palsy, respiratory distress syndrome and necrotizing enterocolitis. Activated NFkappaB is present only in cells involved in ongoing stress, infection, or inflammation. The objective of this study was to determine if NFkappaB is activated in fetal tissues in response to maternal infection leading to preterm pregnancy loss in the rabbit.

STUDY DESIGN: Rabbit does were hysteroscopically inoculated intracervically with 10^5 CFU of *E. coli* on day 21 of pregnancy. They were sacrificed after inoculation at the following time points: 16, 24, and 30 hours. Fetal tissuesCbrain, heart, lung, GI tract, kidney, and placenta—were snap frozen, and whole cell and nuclear proteins were extracted. These were run on electromobility gel shift assays in the presence of a radiolabeled, double stranded NFkappaB DNA response element probe.

RESULTS: Activated NFkappaB was found in all fetal tissues tested. The p50/Rel A (p65) heterodimer was present most strongly in the heart, lung and placenta. The p50 homodimer was present in the placenta, brain, heart, and GI tract.

CONCLUSIONS: In our rabbit model of preterm pregnancy loss, maternal infection results in activation of the proinflammatory cytokine cascade in fetal tissues. An overexuberant activation of the fetal immune response may lead to fetal tissue damage. Supported by MOD Grant# 2532823-1998.



290 POLYMERASE CHAIN REACTION TO DETECT SUBCLINICAL INFECTION IN PRETERM NEONATES. *Madden S**, Esplin MS*, Nelson L*, Dizon-Townson D, Ward K. Dept. of Ob/Gyn, Univ. of Utah School of Medicine, SLC, UT.

OBJECTIVE: Preterm labor (PTL) and delivery has been associated with clinical and subclinical intra-amniotic infection. However, only a small percentage of infants born to women with PTL develop clinically obvious infection. Our purpose was to determine if infants born after PTL exhibit evidence of subclinical infection or bacterial colonization and if so, whether they are at increased risk for neonatal morbidity.

STUDY DESIGN: We identified all preterm infants delivered at < 32 weeks gestation at University Hospital between 1995 and 1997. Patients were included if they were admitted to the NBICU, were not delivered for preeclampsia, fetal distress, multiple gestation or maternal indications and had cord blood available for PCR analysis. A control group of multiparous women who delivered at term with uncomplicated pregnancies was also selected. PCR was performed on neonatal cord blood samples from both groups using primers specific to a conserved region of bacterial 16S rDNA. Outcomes including days in NBICU, ventilator days, O2 requirements and initial WBC were compared between PCR positive and negative groups. Categorical variables were compared by Chi-square analysis and continuous variables were compared by the Mann-Whitney U test.

RESULTS: There were 300 infants born at < 32 weeks gestation during the study period and 103 of these met the inclusion criteria. In the study group, 24 (23%) neonates tested positive for bacterial 16S rDNA. Of the 60 normal controls, there were no cases with positive PCR which was significantly less than the study group (p=0.001). There was no difference in the number of days in NBICU, ventilator days, oxygen requirements or initial WBC between PCR positive and PCR negative neonates.

CONCLUSION: The increased rate of positive PCR results in the preterm infants supports the theory that subclinical infection plays a role in some preterm deliveries. However, infants with evidence of bacterial colonization or subclinical infection were not at increased risk for neonatal morbidity.

291 PLACENTAL PATHOLOGY IN WOMEN READMITTED WITH POSTPARTUM ENDOMETRITIS. *JL Atterbury*[x], LJ Groome, SL Baker, C Hoff[x]. University of South Alabama, Mobile, AL.

OBJECTIVE: To describe histopathologic changes in the placentas of women who had no overt signs of intrauterine infection when discharged after delivery but who were later readmitted with postpartum endometritis.

METHOD: In this retrospective study, we identified 88 consecutive mothers who delivered between January 1, 1990 and December 31, 1997 and who were hospitalized up to 6 weeks postpartum with a diagnosis of endometritis (Group I); no patient in this group had evidence of intrauterine infection before discharge from the hospital following delivery. The diagnosis of endometritis was based on: an oral temperature ≥ 100.4° F on two separate occasions ≥ 4 hours apart, fundal and/or parametrial tenderness, and treatment with intravenous antibiotic agents. Control groups consisted of women with endometritis, based on the same criteria, but who were treated during their initial hospitalization and did not require readmission (Group II, n = 88); and women who had no evidence of intrapartum or postpartum infection and who also did not require readmission (Group III, n = 88). Subjects in Groups II and III were matched (one-to-one) in consecutive order with an index study subject for date of delivery and maternal age, race, and parity; women in Groups I and III were also matched for route of delivery.

RESULTS: Tthere were no group differences in hours of labor, hours of ruptured membranes, number of vaginal examinations, use of internal monitoring devices, or the frequency of artificial rupture of membranes (all p-values > .05). However, women in Group III were more likely to enter labor spontaneously compared to women in Groups I and II ($\chi^2 = 13.1$, p = .001); and women in Groups I and III underwent vaginal delivery more often than women in Group II ($\chi^2 = 73.6$, p < .001). When the placentas were compared based on histopathologic examination, we found that signs of infection in women who developed endometritis after discharge (Group I) were as common as in patients with endometritis immediately after delivery (Group II):

Variable (%)	Group I	Group II	Group III
Chorioamnionitis⁺	19 (21.6%)	15 (17.0%)	4 (4.5%)
Funisitis⁺	6 (6.8%)	7 (8.0%)	0 (0.0%)
Intervillitis⁺	18 (20.5%)	16 (18.2%)	4 (4.5%)

⁺p < .05

CONCLUSION: Women who had no evidence of intrauterine infection when discharged after delivery, but who were subsequently readmitted for postpartum endometritis, had placental findings that were similar to those of women who had endometritis in the immediate postpartum period. These results suggest that subclinical infection, not manifested in the immediate peripartum period, may be an important factor in the etiology of late-occurring endometritis.

292 AMNIOTIC FLUID MMP-9 AND TIMP-1 CONCENTRATIONS THROUGHOUT PREGNANCY AND LABOR. *G Locksmith*, P Clark,[x] P Duff, G. Saade. Depts. Ob/Gyn, Univ. of Florida, Gainesville, Florida and Univ. of Texas Medical Branch, Galveston, Texas.

OBJECTIVE: Matrix metalloproteinases (MMPs) are an important group of enzymes responsible for the degradation of collagen and other extracellular matrix components found in the cervix and fetal membranes. The Tissue Inhibitors of Matrix Metalloproteinases (TIMPs) regulate proteolysis by forming complexes with MMPs with equimolar stoichiometry. We aimed to characterize relationships between amniotic fluid (AF) concentrations of MMP-9, its principal inhibitor (TIMP-1), and various maternal factors.

STUDY DESIGN: In this prospective, observational study, we collected AF samples from 109 women at various stages of pregnancy and labor and determined MMP-9 and TIMP-1 concentrations using commercial ELISA systems. We evaluated associations between AF MMP-9 and AF TIMP-1 concentrations and the following factors: gestational age, presence of labor (induced and spontaneous), cervical dilation, occurrence of spontaneous or artificial rupture of membranes, presence of clinical chorioamnionitis, and colonization of the amniotic fluid with aerobes, anaerobes, or mycoplasmas.

RESULTS: In women who were not in labor, had intact membranes, and had no evidence of chorioamnionitis, AF MMP-9 levels were undetectable in the second trimester and at full-term. In a multivariate analysis, clinical chorio-amnionitis and cervical dilation were independently associated with elevated AF MMP-9. Microbial colonization of the AF replaced chorioamnionitis in a separate multivariate model and also was associated with elevated AF MMP-9. Factors independently associated with elevated AF TIMP-1 concentrations were spontaneous labor, positive AF culture, and clinical chorioamnionitis. Simple regression analysis demonstrated a linear relationship between AF MMP-9 and AF TIMP-1 concentrations ($p<.0001$), however, this model explained only 19% of the total variation in AF TIMP-1 measurements.

CONCLUSIONS: Amniotic fluid levels of MMP-9 increased markedly with advancing labor, intra-amniotic microbial colonization, and clinical chorioamnionitis. Concentrations of its principal inhibitor also appear to increase with clinically evident or culture-proven intra-amniotic infection and during spontaneous labor.

293 GRAM STAIN DIAGNOSIS OF BACTERIAL VAGINOSIS AFTER RUPTURE OF MEMBRANES. *B. La[x]*, J. Mastrobattista, E. Newton. Dept. Ob./Gyn. & Reprod. Sci. UT Houston Medical School, Houston, TX and East Carolina University School of Medicine, Greenville, NC.

OBJECTIVE: To determine the correlation of the Gram stain prior to and after rupture of membranes, and the efficacy of Gram stain diagnosis for bacterial vaginosis (BV) after membrane rupture.

METHODS: From April 1997 to May 1998, pregnant women presenting in labor or for labor induction were invited to participate. Exclusion criteria included membrane rupture prior to hospital presentation and those patients with contraindications for vaginal delivery. A Gram stain of vaginal secretions was obtained prior to membrane rupture. Approximately two hours after membrane rupture, the Gram stain was repeated. Gram stains were scored based on Nugent criteria. BV was diagnosed with a score of ≥ 7. Correlation of the Gram stain prior to and after membrane rupture was evaluated using the Spearman correlation coefficient.

RESULTS: Population characteristics (n=91) included average maternal age of 23 ± 6.0 years, 45 (49%) nulliparas, 59 (65%) African Americans, 23 (25%) Hispanics, 7 (8%) Caucasian, and 2 (2%) Asians. The mean gestational age upon study entry was 40 ± 1.7 weeks. 21% (19 of 91) of the study population were diagnosed with BV. Using Gram stain prior to membrane rupture as the gold standard, Gram stain after membrane rupture had a sensitivity of 26%, specificity of 97%, positive predictive value of 71%, and negative predicative value of 83%. Spearman correlation coefficient of pre- and post- membrane rupture Gram stains was r=0.69.

CONCLUSION: Gram stain may be useful for ruling out BV in the presence of membrane rupture but is not useful for diagnosing BV due to poor sensitivity.

294 CLINICAL VERSUS SONOGRAPHIC ESTIMATE OF BIRTH WEIGHT AMONG TERM PARTURIENTS: A RANDOMIZED STUDY. Hendrix NW[x] *Chauhan SP*, Spartanburg Regional Medical Center, SC

OBJECTIVE: The 1^0 purpose of this randomized study is to determine the relative accuracy of clinical and sonographic estimate of fetal weight (CEFW, SEFW) among term (≥ 37 wks) parturients (TP); 2^0 purpose, which technique is better at differentiating neonates with birth weight (BW) $<$ vs $\geq$ 2500 g or $<$ vs $\geq$ 4000 g.

STUDY DESIGN: Assuming 50% of CEFW are within 10% of BW at least 700 TP are necessary to show that accuracy with SEFW is at least 60% ($\alpha = 0.05$, $\beta = 0.2$, power = 80%). Guidelines in the CONSORT statement were adhered to in implementing this study. Inclusion criteria were parturients with reliable gestational age (GA), non-anomalous fetus, and the examiner (residents or faculty) being unaware of any previous SEFW. Simple error (SERR; BW - EFW), mean standardized absolute error (MSAE; SERR [g]/BW [kg]), receiver-operating characteristic curves (ROCC) and their areas ($\pm$ SD) were used to compare the two techniques. Relative risk (RR) and 95% confidence interval (CI) were calculated. $P < 0.05$ was considered significant.

RESULTS: Over 30 months 758 TP were recruited of which 391 TP had CEFW, 367 SEFW. The mean GA ($p = 0.54$), frequency of those ≥ 41 wks ($p = 0.16$), station of the presenting part ($p = 0.09$), mean birth weight (3356 ± 496 g for CEFW vs $3338 \pm 551$for SEFW; $p = 0.64$), and incidence of BW $<$ 2500 g (4% vs 6%; $p = 0.33$) or ≥ 4000 g (10% for both) were similar for the two groups. The SERR for CEFW (-11 ± 435 g) was significantly lower than for SEFW (493 ± 492 g; $p < 0.0001$), as was the MSAE (106 ± 100 vs 165 ± 108 g/kg; $p < 0.0001$). CEFW had significantly higher percentage of estimate within 10% (58%) than SEFW (32%; $p < 0.0001$; RR 1.6, 95% CI 1.4, 1.9). Area under the ROCC indicates that to identify neonates with BW $<$ vs $\geq$ 2500 g, CEFW (0.57 ± 0.14) and SEFW (0.72 ± 0.10) have similar ability ($p > 0.05$). CEFW and SEFW also have similar ability to differentiate newborns with BW $<$ vs ≥ 4000 g (0.84 ± 0.03 vs 0.71 ± 0.05; $p > 0.05$).

CONCLUSIONS: There is no advantage of SEFW over CEFW in estimating birth weight among TP, or in differentiating neonates with BW $<$ vs $\geq$ 2500 g or $<$ vs ≥ 4000 g.

295 RISK FACTORS FOR PATHOLOGICAL ACIDOSIS. *Hutcheson LE[xa]*, Chauhan SP[b], Scardo JA[b] Medical College of Georgia[a], Augusta, GA; Spartanburg Regional Medical Center[b], Spartanburg, SC

OBJECTIVE: To delineate the antepartum and intrapartum risk factors for pathological acidosis (PA, umbilical arterial pH < 7.00).

STUDY DESIGN: Over 6 yr. all newborns with PA were retrospectively identified. Two sets of controls were selected: 1st group consisted of the next patient with similar route of delivery (C-RD) and, if cesarean delivery (CD) then its indication; 2nd group was matched for maternal demographics (C-DEM; age, race, and gestational age [GA] within 2 wks). From each maternal chart 20 antepartum and intrapartum variables were extracted. A McNemar's test with a continuity correction was used to detect differences in discrete variables, and a Wilcoxon sign rank test was utilized to detect significant differences between observations for continuos variables. To protect the overall significance level, α was set at 0.025.

RESULTS: From July 91 to Feb 97, there were 9120 live births, of which 60 (0.6%) had PA. Between the study and C-RD ($n = 60$) groups, only two factors were significantly different: 1) presence of chronic hypertension (CHTN, 9% in study group vs 0% in C-RD; $p = 0.007$) and 2) GA $<$ 37 wks (60% and 28%; $p = 0.008$, RR 1.6, 95% CI 1.1, 2.2). The study and the 2nd control group (C-DEM; $n = 60$) were similar for incidence of CHTN, pregestational diabetes, cigarette or cocaine use, elevated MSAFP, prior CD, breech presentation, bleeding on admission, preeclampsia, elective CD, abnormal fetal heart rate tracing on admission, spontaneous rupture of membrane, meconium, use of pitocin, and chorioamnionitis. Patients who delivered newborns with PA, were significantly more likely to have CD for fetal distress than C-DEM (43% vs 8%; $p < 0.0001$; RR 8.4, 95% CI 2.9 to 24.0). Incidence of repeat elective CD (5% vs 6%; $p = 1.00$) and CD for dystocia (15% vs 10%; $p = 0.58$) were similar in the study and C-DEM. Vaginal delivery occurred significantly less among those who delivered acidotic neonates than 2nd control (37% vs 75%; $p < 0.0001$; RR 0.2, 95% CI 0.08, 0.4).

CONCLUSIONS: Chronic hypertension, GA $<$ 37 weeks and CD for fetal distress are significant risk factors for pathological acidosis.

296 PREDICTIVE AGREEMENT BETWEEN $FSPO_2$ AND FETAL SCALP pH CONCERNING FETAL ACIDOSIS IN CASES OF PATHOLOGICAL CARDIOTOCOGRAPHY (CTG). *M. Kühnert,* Dept. Ob/Gyn, Univ of Marburg, Germany

OBJECTIVE: To discuss and substantiate the 30% critical threshold of $FSpO_2$ and to complete the puzzle with low $FSpO_2$ and low scalp pH data in cases of pathological CTG scalp samples have been performed while $FSpO_2$ – Registration during labor was in place and while the saturation was ≤ 30%.

STUDY DESIGN: 250 cases with pathological CTG were the subject of this study. 46 term fetuses during active labor had parallel arterial oxygen saturation registration by pulse oximetry combined with CTG. They include patients in whom the $FSpO_2$ was ≤ 30% for at least 10 minutes. In these cases scalp pH sample values have been obtained simultaneously. Outcome data, Apgar scores, cord gases, and whether the infants were transferred to the neonatal intensiv care unit have been examined. Compared with this, there were also cases during labor, where the $FSpO_2$ was > 30%. Also in these cases scalp pH was determined to support and demonstrate the predictive value of $FSpO_2$ for scalp pH, especially in the low ranges. All fetuses were evaluated during periods of non-reassuring CTG with Nellcor N-400 $FSpO_2$ Monitoring Systems and FS14B sensors. CTG-analysis was done by means of Hammacher Score. Receiver operating characteristic analysis was done on all raw data, as well as the ROC-curve from the preceding analysis.

RESULTS: These data validate the critical threshold of 30% $FSpO_2$. There was a striking agreement between the duration of time of hypoxia defined as a $FSpO_2$ less than 30% and the occurence of pathological CTG. $FSpO_2$ values ≤ 30% for more than 10 minutes correlate well with the traditional assessments of clinical outcome such as decreased intrapartum scalp pH, and decreased postpartum cord arterial and venous pH. These results are statistically significant.

CONCLUSIONS: Low $FSpO_2$ data of < 30% for at least 10 minutes or longer correlate significantly with pathological CTG-patterns and with low scalp pH values and have a predictive value concerning fetal outcome.

297 LACTATE VS. pH IN FETAL SCALP BLOOD IN PREDICTION OF SEVERE CORD ATERIAL ACIDAEMIA. *Krüger K,* Bistoletti P, Kublickas M, Westgren M. Dept. Obstet/Gynecol, Huddinge University Hospital, Karolinska Institutet, Stockholm, Sweden.

OBJECTIVE: To study the predictive properties of fetal scalp lactate and pH in relation to severe cord arterial acidaemia.

STUDY DESIGN: Descriptive study of 447 women who had fetal scalp blood sampling performed due to fetal distress within 60 minutes prior to delivery. Of these women 326 were evaluated by means of lactate measurements and 186 by pH analysis. All patients had acid base status determined in cord arterial blood immediately after delivery. The predictive properties of lactate and pH in relation to severe cord arterial acidaemia (pH <7.0 and/or base deficit ≥16 mmol/l) were evaluated by ROC curves.

RESULTS: The area under the ROC curve for the lactate group was 0.778 (95% CI 0.729-0.822) and for the pH group 0.777 (95% CI 0.711-0.835). They did not differ from each other. The maximum sensitivity and specificity for lactate were reached at 5.6 mmol/L level and for pH at 7.14.

CONCLUSIONS: Fetal scalp lactate measurements have the same predictive properties as scalp pH in prediction of severe cord arterial acidaemia.

298 EFFECTS OF METABOLIC VERSUS RESPIRATORY VERSUS MIXED ACIDEMIA IN TERM INFANTS. *BM Casey,* DD McIntire, KJ Leveno. Department of Obstetrics and Gynecology, University of Texas Southwestern Medical Center at Dallas.

OBJECTIVE: To assess the effects of each type of umbilical cord blood acidemia in term infants.

STUDY DESIGN: Retrospective analysis of umbilical artery blood gases in 111,498 liveborn, singleton cephalic infants exposed to labor and delivered between 37 and 41 weeks. Acidemia was defined as a pH <7.10. Mean cord gas values ±2SD for the study population were used to define metabolic, respiratory and mixed acidemias.

RESULTS:

	Type of Acidemia (%)			
Outcome	None n=109,159	Metabolic n=167	Respiratory n=659	Mixed n=1513
Apgar ≤3 at 5 minutes	62 (.06)	6 (4)*	1 (.1)	24 (2)*
RDS	385 (.4)	15 (9)*	6 (1)†	75 (5)*
Seizures	116 (.1)	7 (4)*	2 (.3)	29 (2)*
Sepsis	217 (.2)	2 (1)*	1 (.2)	13 (.8)*
Neonatal death	108 (.1)	5 (3)*	1 (.1)	15 (1)*

*Significant, p .001;†=p.01

CONCLUSIONS: Neonatal morbidity and mortality are increased in term infants born with metabolic or a metabolic component acidemia compared to infants with respiratory acidemia.

299 INCIDENCE OF METABOLIC, RESPIRATORY, OR MIXED ACIDEMIA ACCORDING TO GESTATIONAL AGE. *BM Casey,* DD McIntire,[x] KJ Leveno. Department of Obstetrics and Gynecology, University of Texas Southwestern Medical Center at Dallas.

OBJECTIVE: To determine if gestational age is associated with either metabolic, respiratory, or mixed acidemia.

STUDY DESIGN: Retrospective analysis of umbilical artery blood gases in 127,446 liveborn, singleton, cephalic infants exposed to labor and delivered between 26 and 42 weeks gestation. Acidemia was defined as a pH <7.10. Mean cord gas values ±2SD for the study population were used to define metabolic, respiratory and mixed acidemias.

RESULTS:

	Weeks gestation				
Acidemia Type	26-29 n=626	30-33 n=2355	34-37 n=16034	38-41 n=94105	≥42 n=14326
None	95%	97%	98%	98%	98%
Metabolic	0	7 (.3)	21 (.1)	151 (.2)	29 (.2)
Respiratory	6 (1)	15 (.6)	90 (.6)	478 (.5)	102 (.7)*
Mixed	23 (4)*	50 (2)*	155 (1)	1242 (1)	207 (1)

*Significant, p <.05.

CONCLUSIONS: 1) The incidence of metabolic acidemia was unrelated to gestational age, 2) respiratory acidemia was significantly associated with 42 weeks gestation or greater and, 3) mixed acidemia was increased in infants delivered at 33 weeks or less.

300 INTRAPARTUM FETAL HEART RATE (FHR) RESPONSES TO VIBROACOUSTIC STIMULATION (VAS) VERSUS FETAL BLOOD pH STUDIES TO PREDICT FETAL OUTCOME IN LABOR. *C.C. Lin*, B. Vassallo, R. Mittendorf. Dept. Ob/Gyn, Univ. of Chicago, Chicago, IL

OBJECTIVE: To examine the relationship between FHR responses to intrapartum VAS and fetal blood pH studies to test two hypotheses. (1) A good correlation between FHR responses to VAS and fetal blood pH, thus responses to VAS can be used in lieu of fetal blood pH studies. (2) VAS prediction of fetal well-being is equally effective as fetal blood pH in the first and second stages of labor and in term and preterm fetuses.

STUDY DESIGN: 113 patients were studied prospectively in either the active phase of first stage or second stage of labor. They were selected based on the presence of variable decelerations, late decelerations, tachycardia, or decreased baseline variability. The fetus received a VAS for five seconds and FHR changes were recorded. Fetal scalp blood pH or umbilical arterial blood pH was obtained in each case. Correlations were made between two tests and their predictive capability of fetal outcome parameters was compared. Fisher's exact test and odds ratio with 95% CI was used when appropriate.

RESULTS: Excellent correlations between VAS responses and fetal blood pH were found in both the first stage (n = 53, P = 0.0085, OR = 10.7 (1.9 - 57.0) and the second stage of labor (n = 60, P = 0.0029, OR = 14.0 (2.6 - 74.8). A higher positive predictive value (PPV) was observed when a cutoff of 7.20 was compared to 7.10 to define fetal acidosis (PPV 67% vs. 11%, P = 0.03). It was also observed that VAS responses were comparable between term (≥ 37 wks) and preterm (≥ 34 wks) fetuses. Finally, VAS response was found to be an equally effective tool to predict fetal outcome (low 5 min Apgar, neonatal intensive care unit admission, neonatal morbidity, meconium stained amniotic fluid, cesarean section for fetal distress) compared to fetal blood pH studies.

CONCLUSIONS: Two hypotheses listed in OBJECTIVE were confirmed. The clinical implication of this study is that VAS can be used in lieu of fetal blood pH in obstetric practices in both academic centers and community hospitals.

301 ACCURACY OF FETAL PULSE OXIMETRY IN THE RANGE OF LOW OXYGEN SATURATION. *A.K. Luttkus*, C. Eppel*, J.W. Dudenhausen; Clinic of Obstetrics Humboldt-Universität Berlin, Charité Campus Virchow-Klinikum, Germany

OBJECTIVE: Fetal pulse oximetry (FPO) is supposed to identify fetal compromise caused by reduced oxygen supply. Dual sensor studies showed a precision of the single oxisensor FS14B of ±5.7% with relevant deficits in the low saturation range. Therefore a comparison of FPO readings with hemoximetry measurements as a gold standard is important.

STUDY DESIGN: In a prospective observational trail on 170 fetuses with nonreassuring FHR-tracings and additional fetal scalp blood samplings (FBS), a blinded pulse oximeter (N400, FS14B) measured the oxygen saturation (SPO_2). The FBS's were analysed by Chiron 865 or Radiometer 625 including SaO_2 and Hb. Out of the total study group, 18 fetuses fullfilled the criteria of hypoxia: pH (umb. art.) ≤7.16 + ABE ≤-9.4 and 42 belonged to the normal outcome group defined as: spontaneous delivery, pH ≥7.20, Apgar-score 1' ≥7. The distribution of SpO_2 values was evaluated for a duration of 5', 10' and 20' preceeding each FBS.

RESULTS:

	normal (n=42)			hypoxic (n=18)			
saturation	10th	50th	90th	10th	50th	90th	U-test: p
SaO_2 (FBS) %	13.2	38.3	68.9	12.3	26.3	56.5	0.0553
SpO_2 (5') %	24	42	73	20	39	55	0.4725
SpO_2 (10') %	25	42	70	24	39	51	0.0900
SpO_2 (20') %	26	48	69	22	39	52	0.0100

The median deviation between SPO_2 and SaO_2 rises from 4% in the normal outcome group to 13% in the hypoxic group. Considering the 10th percentile the deviation of both methods is more distinct.

CONCLUSION: In the low oxygen saturation range fetal pulse oximetry shows a relevant deviation from hemoximeter values. The detection of low saturation values by FPO appears impaired. This may explain the relatively low sensitivity of FPO described by different authors to detect compromised fetuses.

302 INTRAPARTUM COMPUTERIZED FETAL HEART RATE (FHR) ANALYSIS: EFFECTS OF LABOR AND THE RELATIONSHIP TO MEASURES OF ACIDOSIS. *S. Agrawal*[X], F. Doucette[X], H. Sachdeva[X], R. Gagnon, R. Gratton, B. Richardson[X], Dept. Ob/Gyn and Physiol., University of Western Ontario, London, Ontario, Canada.

OBJECTIVE: To determine the effect of labor on computerized FHR analysis and the predictive value for measures of fetal acidosis.

STUDY DESIGN: Computerized FHR analysis (Sonicaid System 8000) was carried out for 1 hr in 12 healthy patients prior to elective repeat cesarean section at term, and for 1 or more hrs in 17 patients laboring at term, 8 with "normal" FHR patterns, and 9 with "non-reassuring" FHR patterns. Computed FHR parameters for the hour prior to delivery were compared between the patient groupings and in relation to umbilical artery base excess values at birth. Results are presented as grouped means ± SEM. Decels and accels/60 min; STV and LTV = short term and long term FHR variation.

RESULTS:

	Elective CSx	Labor Normal FHR	Labor Non-reass. FHR
B.E. (mmol/L)	−3.2 ± 0.5	−5.9 ± 0.8	−6.3 ± 1.0
Decels > 20 bpm	0.1 ± 0.1	2.5 ± 1.4	3.3 ± 1.2
Accels > 10 bpm	13.2 ± 1.5	11.4 ± 2.1	9.3 ± 1.8
STV (msec)	7.8 ± 0.4	10.2 ± 1.4	9.2 ± 0.9
LTV (msec)	43.5 ± 2.6	55.7 ± 6.9	51.1 ± 7.5

Decels > 20 bpm vs Umbilical Artery BE, all pts r = −0.36, p = 0.05.
STV (msec) vs Umbilical Artery BE, laboring pts r = 0.62, p < 0.01.
LTV (msec) vs Umbilical Artery BE, laboring pts r = 0.44, p = 0.05.

CONCLUSIONS: FHR Decels > 20 bpm were significantly increased in both groups of laboring patients and were weakly correlated with BE values at birth. While both long term and short term FHR variation were increased in laboring patients, likely reflecting the associated increase in catecholamines, there was a significant decrease in these values in relation to the degree of metabolic acidosis at birth.

303 INTRAPARTUM COMPLICATIONS ASSOCIATED WITH IDIOPATHIC POLYHYDRAMNIOS. *A. Panting Kemp**, E. Chang, L. Castro, E. Quillen, T. Nguyen, Dept. Ob/Gyn, Univ. of IL., Chicago, IL.

OBJECTIVE: The purpose of our study was to determine if idiopathic polyhydramnios (IP) is associated with any increase in perinatal morbidity or intrapartum complications.

STUDY DESIGN: An observational study of 151 consecutive cases of IP (60.4% of cases of polyhydramnios in our population), occurring over an 18 month period from 12/96 to 5/98 was performed. Outcome data was retrieved from a prospectively maintained ultrasound and delivery database. IP was defined as an amniotic fluid index (AFI) of > 24 cm in singleton pregnancies in which there was no evidence of abnormal glucose testing, congenital or placental anomalies, or isoimmunization. Poor outcome was defined as cases with a 1 minute apgar < 4; cord pH < 7.20; abnormal fetal heart tracing necessitating operative delivery; thick meconium stained fluid; preterm delivery (PTD)<37 weeks gestation, and/or low birth weight (LBW) < 2500 gm.

RESULTS: AFI values ranged from 24.1- 43.1 (mean+/-std dev = 27.7 +/- 3.5). Poor outcome was found in 52 cases (34.4%). Comparing these outcome measures with our institutional rates we found that there was no increase in the rate of PTD, 6.6% versus 10.8% institutional rate (p < 0.5), LBW, 6.6% versus 13.5% institutional rate (p < 0.1) or 1 minute apgars < 4, 5.3% versus the institutional rate of 3.7% (p < 0.5). The primary C-section rate with IP, 19.2%, was significantly higher than the institutional rate of 8.8% (p < 0.01). Indications for C-section included emergent / "fetal distress" in 27.6%, failure to progress in 41.4%, malpresentation in 20.7% and macrosomia in 10.3%. In addition there were 2 cord prolapses (1.3%), 1 placental abruption (0.7%) and one uterine dehiscence (0.7%). Labor was complicated by signs of fetal distress, defined as having late or repetitive severe variable decelerations, prolonged bradycardia, cord prolapse, umbilical artery pH of < 7.20, or thick meconium stained fluid in 43 cases (28.5%). There was no perinatal mortality in this study population.

CONCLUSION: Contrary to previous studies, we did not find a high incidence of PTD or LBW with IP, but we did see a high percentage of intrapartum fetal complications and labor intervention due to nonreassuring fetal well-being. This suggests that antenatal testing may be warranted with a diagnosis of IP.

304 RELATIONSHIP BETWEEN NORMAL AMNIOTIC FLUID INDEX AND BIRTHWEIGHT IN TERM PATIENTS WITH INTACT MEMBRANES PRESENTING FOR LABOR. *TD Myles*, TM Nguyen. Dept. OB/Gyn, Univ of IL, Chicago, IL

OBJECTIVE: Polyhydramnios has been shown to be a risk factor for macrosomia. We sought to investigate if a relationship between birthweight and the amniotic fluid existed for term patients with intact membranes, and if so whether this could predict or exclude the presence of macrosomia.

STUDY DESIGN: 274 patients with intact membranes of at least 37 weeks gestation had an amniotic fluid index (AFI) performed upon presentation to Labor & Delivery. 231 patients had an AFI between 5.0 and 24.0. Basic demographic information was collected, as well as mode of delivery, birthweight, presence of diabetes, and delivery outcome. Statistical comparison using chi-square test of association, student T' test, ANOVA and linear regression models were made with significance set at $P < 0.05$.

RESULTS: The mean gestational age was 39.5 weeks and the mean AFI was 11.3. There were 28 infants with birthweights (BW) greater than 4000 grams and 3 above 4500 grams. The cesarean section rate was 16.9%. A significant difference between BW and cesarean section (C/S) was noted (39.2% vs. 13.8%, $P < 0.002$). The mean AFI was higher for those with BW >4000 gm (13.5 vs 11.0, $P < 0.002$). Patients with an AFI >15.0 (1 standard deviation from the mean) had over twice the incidence of BW > 4000 gm, (RR 2.72; 1.1 – 6.6) (32.1% vs 14.8%; $P < 0.027$). Significance increased with increasing AFI. A linear relationship was observed between AFI and BW ($P < .0001$). Birthweight increased with increasing AFI. There was no relationship between C/S and AFI. Presence/absence of diabetes did not affect these results.

CONCLUSION: Increasing AFI appears to correlate with increasing BW. BW >4000 gm is associated with increased incidence of cesarean delivery. An AFI >15 is increasingly associated with the over double occurrence of a BW >4000 gm. AFI testing at admission could aid in determining which patients are at risk for macrosomia so management and preparatory plans could be adjusted accordingly.

305 THE FETAL ADMISSION TEST, INTRAPARTUM FETAL DEATH, AND FETAL AUTOPSY FINDINGS. *B Golditch*[x], MO Ahn, JP Phelan, J Machin[x]. Depts. of Ob/Gyn and Pathology, Kaiser Permanente Medical Center, Santa Clara, California, Cha Women's Hospital, Seoul, Korea, and Pomona Valley Hospital Medical Center, Pomona, California.

OBJECTIVE: To describe the autopsy findings in singleton term fetuses with an intrapartum fetal death.

STUDY DESIGN: Singleton term fetuses with an intrapartum fetal death (IPFD) and who had undergone an autopsy were retrospectively analyzed. Two outcomes were defined on the basis of the fetal admission test: Reactive (one or more FHR accelerations of 15 bpm X 15 sec in the first 30 minutes of monitoring), Nonreactive (NR)- the absence of accelerations.

RESULTS: Of 22 pregnancies with an IPFD, 8 (38%) met study criteria. The fetal admission test results were reactive 3(37%) or NR 5(63%). While the demographic features of these groups were statistically similar, autopsy findings demonstrated higher rates of meconium [4/5 (80%) vs. 1/3(33%)], meconium aspiration [3/5(60%) vs. 0/3(0%)], vascular congestion [4/5(80%) vs. 1/3(33%)] and extramedullary hematopoiesis [3/5(60%) vs. 0/3(0%)] in the NR group.

CONCLUSIONS: Based on the admission test results, the autopsy findings were markedly different. This difference suggests two distinctly different pathophysiologic mechanisms to explain these deaths. The most notable differences were in the nonreactive group. Here, meconium aspiration, vascular congestion, and extramedullary hematopoiesis indicated long-standing fetal problems. Though these findings are limited in numbers, careful fetal autopsy would appear to be beneficial in assessing the cause of intrapartum fetal death.

306 ADMISSION FHR BRADYCARDIA: WAS THE FETAL BRAIN INJURY POTENTIALLY PREVENTABLE. *MO Ahn*, BD Golditch[x], JP Phelan. Dept. of Ob/Gyn, Cha Woman's Hospital, Seoul, Korea, Kaiser Permanente Medical Center, Pomona Valley Hospital Medical Center, Pomona, California and the Childbirth Injury Prevention Foundation.

OBJECTIVE: To determine whether the admission FHR bradycardia (FHR < 90 bpm) causing fetal brain injury was potentially preventable.

STUDY DESIGN: Ten patients with an admission FHR bradycardia were evaluated to determine whether antepartum obstetrical interventions could have potentially prevented fetal brain injury. For this study, all fetuses were deemed to be brain damaged on admission to the hospital.

RESULTS: For these 10 patients, the mean admission-delivery interval was 43.9 ± 33 minutes with a range 14 to 120 minutes. Maternal complications were: Diabetes mellitus - 3; preeclampsia - 1; frank breech-cord prolapse; prior C/S -uterine rupture - 2, postdates (≥ 42 weeks) - 1. Overall, 7 (70%) neonates had nonpreventable brain injuries due to an admission FHR bradycardia such spontaneous uterine rupture prior to labor. Thus, 3 neonates had potentially preventable brain injuries: (1) fetal surveillance testing in 2 patients with diabetes mellitus/postdate pregnancy, (2) delivery on the day of an abnormal fetal surveillance test result.

CONCLUSIONS: Most neonates with an admission FHR bradycardia do not have potentially preventable brain injuries. But, in those instances where an injury does arise, the clinical focus should be on whether the FHR bradycardia could have been prevented through the use of fetal surveillance testing or other antenatal obstetrical techniques, and not be on whether the admission-delivery interval could have been shortened.