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Content

Free Communication 01 – Obstetrics

FC0101 Cesarean Delievery in induced women- Nordic countries 2000-2011

Ellen Løkkegaard (1), Aura Pyykönen (2), Anna-Maija Tapper (2), Ragnheidur Bjarnadottir (3,4), Alexander Kristinn Smarason (4), Kari Klungsøyr (5), Susanne Albrechtsen (6), Marie Carlsson Fagerberg (7), Karin Källen (8), Mika Gissler (9), Finn Egil Skjeldestad (10), Thomas Bergholt (1)
(1) Dept. of Obstetrics and Gynecology, Nordsjællands Hospital, Hillerød, Denmark
(2) Dept. of Obstetrics and Gynecology,Helsinki University Central Hospital, Finland
(3) Dept. of Obstetrics and Gynecology, National University Hospital, Iceland
(4) The Iceland Birth Registry, Iceland
(5) Medical Birth Registry, National Institute of Public Health, Oslo, Norway
(6) Dept. of Clinical Medicine, University of Bergen, Bergen, Norway
(7) Dept. of Obstetrics and Gynecology, Ystad Hospital, Ystad, Sweden
(8) The Swedish National Board of Health and Welfare, Stockholm, Sweden
(9) National Institute for Health and Welfare, Information Dept., Helsinki, Finland
(10) Dept. of Clinical Medicine, University of Tromsø, Tromsø, Norway

Objective: To study the rates of induction of labor in nulliparous and multiparous women with a single cephalic presentation at term (Robson 2a and 4a) from 2000-2011 in the Nordic countries.
Material and methods: In a retrospective, population-based register study, information from the five Nordic birth registries was collected. Age-standardized descriptive statistics were used.
Results In 2000 the age-standardized rates of induction were between 12% and 17% in Robson 2a and between 9% and 15% in Robson 4a. During the time period the induction rates increased with 4-9% in Robson 2a and 2-7% in Robson 4a. The increase in age-standardized induction rates was most pronounced in Iceland, Norway and Denmark. Maternal age increased in all countries during the study period, and gestational age at induction decreased in Denmark, Iceland and Norway.
In Robson 2a, the age standardized Cesarean Delivery rate was stable between 22-29% during the study period in Denmark, Finland, Norway and Sweden. In contrast, the age-standardized risk of Cesarean Delivery in Iceland decreased from 34 to 25% during the same period.
In Robson 4a, the age-standardized Cesarean Delivery rate was stable over time at 3-7%. A 40% lower age-standardized rate of Cesarean Delivery in Robson 4a in Finland was observed during the study period compared to the other countries.
Conclusion: The age-standardized rates of induction in Robson 2a and 4a increased in the Nordic countries from 2000-2011, whereas the age-standardized Cesarean Delivery rates remained stable around 27% in Robson 2a and 5% in 4a.

FC0102 Second trimester cell-free fetal DNA concentrations in maternal blood and later risk of emergency delivery during labor

Jacob Mørup Schlütter (1), Mette Christiansen (2), Niels Uldbjerg (1), Niels Grunnet (2), Steen Kølvraa (3), Ida Kirkegaard (1)
(1) Department of Obstetrics and Gynecology, Aarhus University Hospital, Denmark
(2) Department of Clinical Immunology, Aarhus University Hospital, Denmark
(3) Department of Clinical Genetics, University of Southern Denmark, Denmark

Objective: High levels of cell-free fetal DNA in maternal blood may be associated with abnormal placentation. Therefore, the objective of this study was to investigate the association between high levels of cffDNA at gestational age 22^{+0} to 33^{+6} weeks and later emergency delivery during labor, defined as either emergency caesarean section or instrumental vaginal delivery.
Study Design: Measurements of cell-free fetal DNA given as multiples of the median value (MoM) for gestational age at blood sampling on 2591 pregnant women attending the routine *Rhesus D* screening program in the Central Denmark Region at a gestational age ranging from 22^{+1}-33^{+6} weeks were included. Information on pregnancy and labor was obtained from the National Fetal Medicine Database. Logistic regression was used to estimate the association between high levels of cell-free fetal DNA MoM levels and delivery mode.
Results*:* Cell-free fetal DNA MoM levels > 97.5^{th} centile were associated with emergency delivery during labor (OR: 1.98; 95% CI: 1.08 - 3.61) and emergency caesarean section (OR: 2.40 95% CI: 1.19 - 4.87). Cell-free fetal DNA MoM levels > 95^{th} centile were associated with increased risk for emergency delivery during labor (OR: 1.61; 95% CI: 1.03 - 2.53). Adjusting for preterm birth, preeclampsia and small for gestational age, individually, did not affect the OR.
Conclusion: Cell-free fetal DNA levels in maternal blood at a gestational age of 22^{+0}-33^{+6} weeks may constitute a useful marker to be considered together with other clinical information when deciding for elective cesarean section or trial of labor.

FC0103 Assessment of quality of care in labor and delivery using the Ten Group Classification System* (TGCS)

Janne Rossen (1), Michael Robson (2), Siren Rettedal (3), Elsa Lindtjørn (4), Torbjørn Moe Eggebø (4,5)
(1) Department of Obstetrics and Gynecology, Sørlandet Hospital HF Kristiansand, Norway
(2) Department of Obstetrics and Gynecology, The National Maternity Hospital, Dublin, Ireland
(3) Department of Pediatrics, Stavanger University Hospital, Norway
(4) Department of Obstetrics and Gynecology, Stavanger University Hospital, Norway
(5) National Center for Fetal Medicine, Trondheim University Hospital (St Olavs Hospital)

Objective: Assessing quality of care in labour and delivery using the TGCS
Design and Setting: Population based prospective cohort study analyzing caesarean section (CS) rates, maternal and neonatal events and outcomes
Population: 9848 pregnancies at Stavanger University Hospital, Norway
Results: The overall CS rate was 13.6%. In nulliparous women with a single cephalic term, pregnancy (group 1 and 2) the CS rate was 11.2 % and in similar multiparous women with no previous CS (group 3 and 4) the CS rate was 5.3%. Women with at least one previous CS and a single fetus at term in cephalic position (group 5) had a CS rate of 46.5%.
The overall operative vaginal delivery rate and induction rate was 12.7% (1255/9848) and 20.1% (1980/9848) respectively. PPH rate >1000ml was 4.4% (438/9848) overall and 43% were nulliparous women.
In addition to the results in Table 1 ethnicity, epidural, oxytocin, duration of labour, episiotomy, metabolic acidosis, still birth and perinatal deaths were classified according to the TGCS.
Conclusions: The TGCS is a useful tool to stratify labour and perinatal outcomes allowing more detailed analysis of different prospective groups of women. This standardization of analysis allows a simple and immediate comparison within and between different delivery units. Using the TGCS will help validate and improve both clinical data quality and clinical care irrespective of different procedures and policies. We encourage units to make use of this classification as this knowledge will help us to complement the evidence when informing clinicians and finally the woman themselves.

FC0104 Ultrasound Pregnancy Dating and Biased Perinatal Morbidity in Late Preterm and Early Term Male Infants

Merit Kullinger (1), Bengt Haglund (2), Helle Kieler (3), Alkistis Skalkidou (4)
(1) Dep of Women's and Children's Health, Uppsala, and CKF, Västerås, Sweden
(2) Centre for Pharmacoepidemiology, Dep of Medicine, Solna, KI, Sweden
(3) Centre for Pharmacoepidemiology, Dep of Medicine, Solna, KI, Sweden
(4) Dep of Women's and Children's Health, Uppsala University, Uppsala, Sweden

Background: Male sex has been associated with adverse perinatal outcome. A systematic bias in gestational age calculation, because of differences in early fetal growth between male and female fetuses at the time of ultrasound-based pregnancy dating, could lead to increased risk for perinatal morbidity among late preterm and early term male infants.
Aims: The aim of this study was to compare perinatal outcomes of male and female infants, born term and late preterm, before and after introduction of ultrasound dating.
Methods: In this study, we used data on 1,314,602 births from the Swedish Medical Birth Registry to compare perinatal adverse outcomes related to prematurity for male and female infants, before (1973-1978) and after (1995-2010) ultrasound was introduced for dating pregnancies.
Results: Male late preterm (35-36 weeks) and early term (37-38 weeks) infants had increased risk of adverse outcomes related to prematurity, such as low Apgar score, hyperbilirubinemia, pneumothorax and respiratory distress, compared to female infants, after the method for dating pregnancy was changed
Conclusions: These results are consistent with the hypothesis that male fetuses are at risk of being assessed as having a longer gestational age, because of their greater size at ultrasound dating, and thus being more premature at birth than their estimated gestational age, with increased risk of adverse outcome related to prematurity. Misclassification of gestational age by US dating could partially explain currently reported sex differences in negative neonatal outcomes in the late preterm and early term newborn.

FC0105 Placental abruption and longterm maternal mortality: a population-based registry study in Norway

Lisa De Roo (1), Rolv Skjærven (0), Kari Klungsøyr (0), Nils-Halvdan Morken (1), Allen Wilcox (3)
(1) Dept. of Global Public Health & Primary Care, University of Bergen, Norway
(2) Medical Birth Registry, Norwegian Institute of Public Health, Bergen, Norway
(3) National Institute of Environmental Health Sciences, NIH, RTP, NC, U.S.A.

Pregnancy complications such as preeclampsia are associated with women's subsequent risk of cardiovascular disease, but little is known about how placental abruption may influence risk. We used linked Norway Medical Birth Registry and Death Registry data to study cardiovascular disease mortality among 836,147 women with a first singleton birth between 1967 and 2002. Cox regression analysis was used to estimate associations between placental abruption and cardiovascular disease death adjusting for maternal age, education and year of the pregnancy. After an average follow-up of 25 years, 2,556 women had died from cardiovascular disease out of a total of 23,009 deaths. Compared with those who did not, women with placental abruption in first pregnancy (n=4,732) had a 2-fold increased risk of dying of cardiovascular disease (hazard ratio=2.0; 95% confidence interval 1.4, 2.8). Results persisted after excluding women with other pregnancy complications and did not differ substantially by gestational length of the first pregnancy or attained parity. These results suggest that placental abruption, like other pregnancy complications, may influence women's risk of cardiovascular disease in the decades following reproduction.

FC0106 Recurrence risk of second trimester pregnancy loss and extreme preterm birth. A population-based cohort study.

Kirstine Sneider (1), Jens Langhoff-Roos (2)
(1) Center of Clinical Research, Vendsyssel Hospital
(2) Department of Obstetrics, Juliane Marie Centre, Rigshospitalet

Objective: To study how demographic characteristics and perinatal outcomes are associated with recurrence risk among women with a singleton second trimester pregnancy loss (STPL) or extreme preterm birth(EPB) in gestational week 15+0 to 27+6, separately among women with STPL or EPB in first pregnancy.
Methods: Using population-based registries we have identified women in Denmark with an STPL or EPB and at least one subsequent delivery greater than 15 gestational weeks from 1997 to 2012.
Results: In total, 0,7 % (8065/1.092.781) of women experienced second trimester pregnancy loss or extreme preterm birth, the prevalence being 0,4% for STPL and 0,3% for EPB. Recurrence risk for STPL or EPB in subsequent pregnancy was overall 7,7 % (233/3039). After adjustment for possible covariates, a short interval between pregnancies was found to be the strongest risk factor for recurrent STPL or EPB. Other predisposing factors were nulliparity and overweight. Speficically, among the 43% of women with STPL or EPB in first pregnancy recurrence risk was 10,4% (135/1302). Among these women recurrence was shown to be associated with short interval between pregnancies, less than 6 months, (adjusted OR 2,5 95% CI 1,4 to 4,4), obesity, BMI >30, (adjusted OR 1,9 95% CI 1,1 to 3,4) compared with women delivering after 28th week of gestation.
Conclusion: Second trimester pregnancy loss and extreme preterm birth in first pregnancy was strongly associated with subsequent STPL /EPB. Women without previous deliveries were at increased risk of recurrent STPL/EPB especially if they were obese and had a short interval between pregnancies.

FC0107 Quantitative sonoelastography of the uterine cervix as a predictor of cervical dilation time after induction of labor

Lene Hee (1, 2), Christina K. Rasmussen (1,2), Jacob M. Schlütter (1,2), Puk Sandager (1,2), Niels Uldbjerg (1,2)
(1) Deparment of Obstetrics and Gynecology, Aarhus University Hospital, Denmark
(2) Institute of Clinical Medicine, Aarhus University Hospital, Denmark

Objective: To evaluate how the approximate Young´s modulus of the uterine cervix as assessed by quantitative sonoelastography is associated with the cervical dilatation time in patients undergoing induction of labor.
Methods: A total of 49 term-pregnant women were included just before induction of labor. The approximate Young's modulus of the central part of the anterior cervical lip was determined by the use of a reference cap applied on the transvaginal transducer during sonoelastography (Figure 1).
Results: The intra-observer ICC was 88% and the inter-observer ICC 58%. The approximate Young´s modulus was associated with the cervical dilation time during active labor ($R\text{-squared}_{log}$ = 0.22, p = 0.00) and predicted prolonged duration of cervical dilatation time with the area under the ROC curve of 71% (95% CI: 56-86%), a sensitivity of 74 %, and a specificity of 69 %. Equivalent figures for the Bishop's score were $R\text{-squared}_{log}$= 0.02 (p = 0.37), the area under the ROC curve 53% (95% CI: 34-72%), a sensitivity of 53 %, and a specificity of 46 %.
Conclusion: The approximate Young´s modulus is superior to the Bishop score concerning prediction of cervical dilatation time and risk of prolonged dilatation time after induction of labor. This may have a clinical perspective.

FC0108 Migration and preterm birth: a comparison between estimates for source countries and rates after migration.

Ingvil Krarup Sørbye (1), Anne Kjersti Daltveit (2,3), Siri Vangen (1,2)
(1) Norwegian Resource Centre for Women's Health, Oslo University Hospital, Norway
(2) Norwegian Institute of Public Health, Bergen, Norway
(3) Department of Global Public Health and Primary Care, University of Bergen, Norway

Background: Preterm birth (PTB) rates vary by maternal country of origin; however, the nature of the differences (physiological or pathological) remains contested.
Aims: We aimed to compare PTB rates in Norway by maternal country of birth to estimates for PTB in the corresponding source countries.
Methods: We linked Norwegian birth and immigration data for 55 099 liveborns to women born in Somalia, Pakistan, Iraq, Vietnam, Thailand, the Philippines, Sri Lanka and Turkey from 1990-2010. We calculated the PTB rate with 95% confidence intervals by country group and by length of residence. We used the most recent WHO PTB estimates for source countries for the year 2010 as comparison.
Results: A total of 4 092 PTBs occurred. The PTB rates in source countries were higher in all country groups when compared to rates among immigrants. Seven out of eight source countries had PTB rates >10%, whilst among immigrants, all groups had PTB rates of <9%. There was no correlation between country estimates for PTB in source countries and in Norway (R^2=0.255, p=0.202).We found a positive trend between PTB rates and length of residence in six out of eight groups. The association was present for medically indicated births only and was partly explained by increased registration of maternal and fetal morbidity.
Conclusions: The PTB gap between immigrants and their source countries is likely to reflect selection to migration and differences in pathology, whereas differences across length of residence is likely to be due to a mix of physiological and pathological factors.

FC0109 Risk factors for perinatal mortality in post-date pregnancies – a national cohort study

Ida Kirkegaard (1), Anne Zizzo (1), Anja Pinborg (2), Niels Uldbjerg (1)
(1) Dept. of Obstetrics and Gynecology, Aarhus University Hospital, Skejby, Denmark
(2) Dept. of Obstetrics and Gynecology, Copenhagen University Hospital, Hvidovre, Denmark

Objective: Certain maternal characteristics are associated with an increased risk of perinatal mortality, but the extend of this association in post-date pregnancies is unknown. The aim of the current study was to explore the association between maternal age, BMI and parity and perinatal mortality in post-date pregnancies (≥ 40^{+0} weeks).
Material and methods: Data was retrieved from the Danish Medical Birth Registry and included all Danish singleton pregnancies during January 2007 to December 2012 (N=356.040). Logistic regression analyses were used to investigate associations between maternal characteristics and perinatal mortality in the total cohort and for pregnancies ≥ 40^{+0} weeks of gestation (N=193.082).
Results: The primary results are shown in the attached table. In the total cohort, maternal age at 36-40 years and > 40 years was associated with a significantly increased risk of perinatal mortality, but when observing only pregnancies ≥ 40^{+0} weeks of gestation, no significant association was found. Regarding BMI, we found significant associations between BMI 26-30, 31-35 and > 35 and perinatal mortality in the total cohort, and in pregnancies ≥ 40^{+0} weeks these associations were even stronger. The same pattern was found for primiparous women.
Conclusion: This study suggests that overweight and primiparous women may benefit more from post-date surveillance and induction of labor than women with advanced age, as the risk of perinatal death in pregnancies with BMI > 30 or primiparity was further increased after reaching 40^{+0} weeks compared to all pregnancies.

	Total cohort (N = 356.040)		≥ 40 weeks (N = 193.082)	
	OR (95% CI)	**P-value**	**OR (95% CI)**	**P-value**
Maternal age ≤ 35 years	Reference		Reference	
Maternal age 36-40 years	1.15 (1.03 – 1.29)	0.017	1.14 (0.83 - 1.55)	0.43
Maternal age> 40 years	1.51 (1.22 – 1.87)	< 0.001	1.07 (0.53 – 2.17)	0.86
BMI ≤ 18	1.19 (0.87 – 1.61)	0.27	1.30 (0.53 – 3.18)	0.57
BMI 19-25	Reference		Reference	
BMI 26-30	1.34 (1.19 – 1.51)	< 0.001	1.35 (0.98 – 1.88)	0.07
BMI 31-35	1.66 (1.41 – 1.94)	< 0.001	2.15 (1.45 – 3.20)	< 0.001
BMI > 35	2.07 (1.72 – 2.50)	< 0.001	2.30 (1.38 – 3.83)	0.001
Primiparous	1.06 (0.97 – 1.17)	0.20	1.37 (1.06 – 1.77)	0.016
Multiparous	Reference		Reference	

Free Communication 02 - Fetal medicine & mixed

FC0201 Long-term neurodevelopmental outcome of children from euploid pregnancies with increased nuchal translucency in the first trimester screening

Outi Äyräs (1), Marianne Eronen (2), Minna Tikkanen (1), Päivi Rahkola-Soisalo (1), Jorma Paavonen (1), Vedran Stefanovic (1)
(1) Department of Obstetrics and Gynecology, Helsinki University Central Hospital, Finland
(2) Health Department, the Social Insurance Institution of Finland

Objectives: To assess the long-term neurodevelopmental outcome of children born from singleton euploid pregnancies with increased fetal nuchal translucency (NT) at the first trimester ultrasound screening and without structural anomalies in the second trimester screening.
Methods: Data about the long-term neurodevelopmental outcome from consecutive singleton euploid pregnancies referred to the Helsinki University Central Hospital after first trimester ultrasound screening due to increased NT between the years 2002 and 2007 was collected. The follow-up time was measured in full years counting from the year of birth until the end of year 2012.
Data was collected from the hospital databases, the national registers of the National Institute for Health and Welfare, and the Finnish Causes of Death Statistics Database. Information about received allowances for disability was gathered from the Social Insurance Institute of Finland. Preterm pregnancies, children born with asphyxia, and those born large or small for gestational age were excluded.
Results: Altogether, 691 children from euploid pregnancies with increased NT thickness (≥95th centile) were identified. The mean follow-up time was 6.5 years. Neurodevelopmental disorders were found in 29 children (4.2 %). The percentage of neurodevelopmental disorders was not higher than in the general population. Twelve of these 29 children (1.7%) had severe neurodevelopmental impairment and the NT of these fetuses was significantly higher compared to children with or without mild neurological defect (p = 0.03).
Conclusion: Data on the long-term neurodevelopmental outcome of euploid children from pregnancies with increased NT is reassuring. This information should be added to the parental counselling.

FC0202 Influence of volume load in moderately anemic fetuses studied by color-coded tissue velocity imaging (TVI)

Lotta Herling (1,2), Kjerstin Ferm-Widlund (1,2), Nina Elmstedt (3), Jonas Johnson (4,5), Peter Lindgren (1,2), Marius Kublickas (1,2), Magnus Westgren (1,2)
(1) Department of Obstetrics and Gynecology, Centre for Fetal Medicine,
(2) Karolinska University Hospital, Stockholm, Sweden
(3) CLINTEC, Karolinska Institute, Stockholm, Sweden
(4) Department of Medical Engineering, School of Technology and Health, KTH,
(5) Royal Institute of Technology, Stockholm, Sweden

Objective: At intrauterine transfusions (IUT) the fetus is exposed to a significant volume load. In the present study we wanted to evaluate the heart function with TVI before and after IUT as there are indications that TVI might be a more sensitive tool in assessing the fetal heart.
Methods: Eleven fetuses were assessed pre and post transfusion with TVI. All mothers suffered from erythrocyte immunization. The median gestational age was 27 (21+6-33+0) weeks, the median hemoglobin value before transfusion was 121 (65-141) g/l. Eight fetuses were transfused in the intrahepatic part of the umbilical vein and three in the placental cord insertion and the median blood volume transfused was 35 (10-70) ml. None of the fetuses suffered a complication requiring delivery after the procedure. The TVI parameters studied were the peak systolic tissue velocity (S'), the peak tissue velocity during early diastole (E') and atrial contraction (A') and the post-ejection period defined as the time from the end of systole to the beginning of the diastolic rapid filling. The parameters were assessed in the basal part of the interventricular septum and in the right and left ventricular wall immediately below the atrioventricular plane.
Results: None of the TVI parameters studied displayed a significant change between the pre and post transfusion assessment.
Conclusion: As no significant change was demonstrated in TVI parameters between pre and post transfusion evaluation this would suggest that moderately anemic fetuses tolerate a substantial volume load.

FC0203 Association between maternal anti-HLA class 1 antibodies and risk of being small-for-gestational age in thrombocytopenic neonates

Jesper Dahl (1), Anne Husebekk (1), Bjørn Skogen (2), Ganesh Acharya (3,5), Kari Flo (3), Tor Brynjar Stuge (1), Bjørn Straume (4), Heidi Tiller (1,5)
(1) Immunology Research Group, University of Tromsø, Norway
(2) Norwegian National Unit for Platelet Immunology, Tromsø, Norway
(3) Women's Health and Perinatology Research Group, University of Tromsø, Norway
(4) Department of Community Medicine, University of Tromsø, Norway
(5) Department of Obstetrics & Gynecology, University Hospital of North Norway

Introduction and objectives: Fetal and neonatal alloimmune thrombocytopenia (FNAIT) is caused by maternal antibodies against fetal platelet antigens, most commonly human platelet antigen (HPA) 1a. It has been hypothesized that anti-HLA class 1 antibodies can cause FNAIT. Maternal antibodies against HPA-1a are associated with an increased risk of male neonates being small for gestational age (SGA). In this study the aim was to explore possible association between maternal anti-HLA class 1 antibodies and risk of being SGA in thrombocytopenic neonates.
Methods: The study had a case-control design. The cases consisted of all referred cases of suspected FNAIT in Norway during 1998-2009 where only maternal anti-HLA class 1 antibodies (no anti-HPA antibodies) were detected (n=50). Neonates of anti-HLA class 1 antibody positive women participating in a prospective study of maternal hemodynamics and endothelial function at the University Hospital in North Norway during 2006-2010 served as controls (n=72). SGA was defined as birth weight $<10^{th}$ percentile for gestational age.
Results: The prevalence of SGA among cases was 48% compared with 10% in controls ($p<0.001$). Logistic regression analysis adjusting for maternal age, nulliparity, pre-eclampsia and sex of the neonate revealed increased risk of being SGA among cases compared to controls (OR=6.15, $p<0.001$). Anti-HLA class 1 antibody level was significantly higher among cases compared with controls ($p=0.001$). Antibody levels were significantly higher among SGA compared to appropriate for gestational age neonates among cases ($p=0.04$), but not among the controls ($p=0.7$).
Conclusion: Maternal anti-HLA class 1 antibodies are associated with SGA in thrombocytopenic neonates.

FC0204 First trimester screening for hypertensive disorders of pregnancy

Ragnhild Bergene Skråstad (1,2), Gunhild Garmo Hov (3), Harm-Gerd Karl Blaas (1,2), Pål Richard Romundstad (1), Kjell Åsmund Salvesen (2,4)
(1) Norwegian University of Science and Technology, Faculty of Medicine, Norway
(2) National Center for Fetal Medicine, St.Olavs Hospital, Norway
(3) Department of Medical Biochemistry, St. Olavs Hospital, Norway
(4) Department of Obstetrics and Gynecology, Lund University, Sweden

Objective This Prospective screening study aimed to evaluate first trimester screening for preeclampsia and gestational hypertension with maternal characteristics, mean arterial pressure (MAP), uterine artery pulsatility index (UtAPI), pregnancy-associated plasma protein-A (PAPP-A) and placenta growth factor (PlGF) in a population of medium to high-risk women in Norway.
Methods The study was conducted at National center for fetal medicine in Trondheim, Norway. A total of 579 women who were nulliparous or had a history of preeclampsia or gestational hypertension in a previous pregnancy were examined between 11+0 and 13+6 weeks with interviews for maternal characteristics and measurements of MAP, UtAPI, PAPP-A and PlGF. The tests were evaluated separate and in combined models with receiver-operator characteristics (ROC) curves.
Results The best model achieved an area under ROC-curve of 0.866 (95% CI 0.756-0.976) for severe preeclampsia, 0.738 (95% CI 0.634-0.84) for preeclampsia, 0.820 (95% CI 0.727- 0.913) for gestational hypertension and 0.783 (0.709-0.856) for hypertensive disorders in pregnancy overall. Using a full model we could identify 61.5% (95% CI 31.6-86.1) of severe preeclampsia, 38.5% (95% CI 20.2-59.4) of preeclampsia and 42.9% (95% CI 21.8-66) of gestational hypertension at a 10% fixed screen positive rate.
Conclusions Maternal characteristics, MAP, UtAPI, PAPP-A and PlGF showed limited value as screening tests for hypertensive disorders in pregnancy. Further research on biochemical and biophysical tests and algorithms combining these parameters is needed before such first trimester screening for hypertensive disorders of pregnancy is included in antenatal care of Scandinavian women.

FC0205 Perinatal outcome after intrauterine blood transfusions for red cell alloimmunization in Sweden

Eleonor Tiblad (1), Magnus Westgren (1), Sverker Ek (1), Peter Lindgren (1), Peter Conner (1), Elle Wågström (1), Marius Kublickas (1)
(1) Center for Fetal Medicine, Karolinska University Hospital, Stockholm, Sweden

Objective: To describe the up to date perinatal outcome after intrauterine blood transfusion for red cell alloimmunization in Sweden.
Methods: All patients that underwent intrauterine transfusions for fetal anemia due to red cell alloimmunization at the Swedish national center for intrauterine therapy 2011 – 2013 was included in the study. Data on the procedures as well as perinatal outcomes were registered prospectively in a standardised database (www.gravimm.se).
Results: During the three years period 112 transfusions were carried out in 26 pregnancies in 24 women. The most common red cell antibody was anti-D (88%). Sixty-three percent of the transfusions were performed in the intrahepatic portion of the umbilical vein, 27 percent in the placental insertion and ten percent intraperitoneally. The median number of transfusions required per pregnancy was 4 (range 1 to 10). Fourteen percent (16/112) of the procedures were performed before 22 weeks of gestation. One of the patients presented with fetal hydrops. A procedure related complication occurred in 3 (2,7%) cases, leading to delivery in 1 (0,9%) case. The overall perinatal survival was 100 percent. The mean gestational age at delivery was 36 weeks.
Conclusion: The perinatal outcome in this recent cohort of patients requiring intrauterine blood transfusions was excellent and the procedure related complication rate was low. Intrauterine transfusions remain the most successful treatment choice for severe red cell alloimmunization.

FC0206 Child morbidity associated to maternal age

Malene Meisner Hviid (1), Charlotte Skovlund (1), Øjvind Lidegaard (1)
(1) Department of Gynecology, Rigshospitalet, University of Copenhagen, Denmark

Introduction: Women continue to deliver at a steady increasing age. Previous studies have linked advanced maternal age with some diseases in offspring. We aimed to investigate the effect of maternal age on different main groups of diseases in an historical cohort study.
Methods: We included singletons born from January 1st, 1994 till December 31st, 2009. We excluded children born below 2500 grams, born before 37 weeks, multiple births and stillborn. We adjusted for mothers smoking status and BMI. Children were divided into four groups based on the age of their mother (15-24, 25-29, 30-34, and 35+ years) and were followed on average 7.5 years. Women aged 25-29 were used as reference. Outcomes were identified in National health registries.
Results: Among 931,445 included singletons, we found in 14 of 19 disease subgroups a significantly increased morbidity in children born by mothers 15-24 years old as compared with older women. In eight of 19 subgroups, the association between maternal age and child morbidity showed a significant and consistent decrease in morbidity with increasing maternal age. Only neonatal illnesses were significantly more frequent in children born by 35-year old or older mothers as well as younger mothers.
Conclusion: Children born by young mothers had the highest morbidity in several subgroups. For neonatal diseases the association to age was high among young and older mothers.

FC0207 Cervical conisation and risk of preterm delivery in assisted reproductive technology (ART) singleton and twin pregnancies - Danish national cohort study

Anja Pinborg (1), Gitte Ørtoft Lykkegaard (2), Anne Loft (3), Steen Christian Rasmussen (4), Hans Jakob Ingerslev (2)
(1) Department of Obstetrics/Gynecology, Hvidovre Hospital, Copenhagen Univsersity, Denmark
(2) Department of Obstetrics/Gynecology, Skejby Hosptial, Aarhus University, Denmark
(3) Fertility Clinic, Rigshospitalet, Copenhagen University, Denmark
(4) Department of Microbiology, Hvidovre Hospital, Copenhagen University, Denmark

Aim: The aim was to identify if cervical conisation adds an additional risk of preterm delivery in singleton and twin pregnancies after ART.
Materials & Methods: All ART singleton (n=16,923) and twin (n=4829) deliveries identified through the Danish IVF and Medical Birth register (MBR) from 1995-2009. A random sample of spontaneously conceived (SC) singletons, two-fold the size of the ART singleton group matched by date and year of birth (n=33,835) and all SC twin deliveries was extracted via the MBR (n=15,112). Diagnoses of cervical conisation came from the Danish Registry of Pathology (DRP). Risks of preterm birth were adjusted for maternal age, parity and year of birth.
Results: The prevalence of conisation was higher in women with ART singleton (3.4%) compared to SC singleton deliveries (2.4%)(P<0.001). This did not differ in ART vs. SC twin deliveries. In ART singleton deliveries the prevalence of PTB was 13.1% in women with conisation vs. 8.2% in women without conisation with an adjusted risk of PTB in mothers with conisation of aOR 1.55 (95%CI 1.21-2.06). In ART twin deliveries the prevalence of PTB was 58.0% vs. 41.3% in women with and without conisation with an adjusted risk of aOR 1.93 (95%CI 1.35-2.76.
Conclusion: With nearly 60% of the ART twins being born preterm in case of conisation and with a doubled risk of PTB in case of conisation, single embryo transfer should be performed in all women with conisation prior to ART independent on age and number of ART cycles performed.

FC0208 A novel topical formulation of lidocaine, SHACT, provides highly significant analgesia for insertion of an intra-uterine device

Berith Tingåker (1), Arne Brodin (2), Lars Irestedt (3), Gunvor Ekman-Ordeberg (1)
(1) Karolinska Institutet, Department of Woman and Child Health, Stockholm
(2) Pharmanest, Stockholm
(3) Karolinska Institutet, Department of Physiology and Pharmacology, Stockholm

Background: A novel topical formulation of lidocaine (short-acting 4% viscous solution; SHACT) has been developed by Pharmanest AB. The viscosity of SHACT is increased at body temperature, which minimises leakage after gynaecological application. Two studies were performed to investigate the pharmacokinetics, safety and analgesic efficacy of SHACT for insertion of an intra-uterine device (IUD).
METHODS: SHACT was applied topically to the portio, into the cervical canal and into the uterus with a specifically developed applicator. In the first study (phase I), the pharmacokinetic properties of SHACT were investigated. A randomized, double-blind, placebo-controlled, phase II trial was then performed to evaluate efficacy and safety in nulliparous women. Participants of both studies were planning to undergo IUD insertion.
RESULTS: The phase I study (n=15) showed that the mean plasma lidocaine C_{max} was 351 ng/mL (range: 64.7–725 ng/mL), and the mean t_{max} was 68 minutes. No toxicity concerns were observed. In the phase II study (n=218), mean visual analogue scale pain score 10 minutes after IUD insertion was 36% lower with SHACT than with placebo (28.3 ± 24.6 vs 44.2 ± 26.0; $p<0.0001$). On average, 3 out of 4 women will experience reduced pain with SHACT than with placebo. Adverse events were similar in the placebo and SHACT groups and no serious adverse events were reported.
CONCLUSION: These studies show that SHACT is well tolerated and produces a highly significant reduction in pain upon IUD insertion. There may be potential for SHACT to be used for other gynaecological procedures.

FC0209 Obstetricians might suffer as "second victim" having posttraumatic stress symptoms

Åsa Wahlberg (1), Magna Andreen Sachs (2), Kerstin Bergh Johannesson (3), Gunilla Hallberg (1), Maria Jonsson (1), Agneta Skoog Svanberg (1), Ulf Högberg (1)
(1) Department of Women's and Children's Health, Uppsala University
(2) Department of Learning, Informatics, Management and Ethics, Karolinska Institute
(3) Department of Neuroscience, Uppsala University

Background: The term "second victim" describes psychological stress reactions among health professionals exposed to unexpected negative events causing serious harm to a patient. Consequences for the "second victim" might be symptoms of acute stress disorder, post-traumatic stress disorder (PTSD) and fatigue syndrome. Little is known about the "second victim" experiences in obstetrics. The objective of the study was to examine the psychological impact of potentially traumatic events on obstetricians.
Methods: All members of the Swedish Society of Obstetrics and Gynaecology were invited by e-mail to a web-survey. It was completed by 698 respondents (response rate of 46.6%). The questionnaire covered demographics and questions about exposure to serious obstetric events at the delivery ward. For those with an experience of a potentially traumatic event the psychological reaction was measured by the instrument SQ-PTSD.
Results: Of the respondents 86% had experienced one or more serious obstetric events as defined in the questionnaire. Thirty-nine percent experienced such an event as traumatic causing an immediate sensation of fear and/ or helplessness and in 13,5 % the answers indicated serious stress reactions as partial PTSD or PTSD. Respondents having partial PTSD and PTSD expressed insufficient support from managers and colleagues ($p< 0.001$). Professional support had been given to 9.9% of all the respondents.
Conclusion: Obstetricians might become "second victims" due to traumatic events at the delivery ward having symptoms indicating PTSD. Managers need to consider a structured support in the aftermath of serious obstetric events.

Free Communication 03 - Fertility & mixed

FC0301 The risk of congenital malformations in children born after assisted reproduction: A Nordic study from the Conartas group

AA Henningsen (1), R Skjaerven (2), A Tiitinen (3), UB Wennerholm (4), LB Romundstad (5), M Gissler M (6), C Bergh (4), SS Malchau (8), JL Forman (7), A Pinborg (8)
(1) Fertility Clinic, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark
(2) Dept. of Public Health and Primary Health Care, University of Bergen, Norway
(3) Department of Obstetrics and Gynecology, Helsinki University Central Hospital, Finland
(4) Department of Obstetrics and Gynaecology, University of Gothenburg, Gothenburg, Sweden
(5) Dept of Obstetrics and Gynecology, St Olavs University Hospital, Trondheim, Norway
(6) THL, National Institute for Health and Welfare, Helsinki, Finland
(7) Department of Biostatistics, University of Copenhagen, Copenhagen, Denmark
(8) Dept. of Obstetrics and Gynecology, Copenhagen University Hospital, Hvidovre, Denmark

Objective: To investigate the risk of malformations among children conceived after ART (assisted reproductive techniques).
Design: Population-based study on singletons (n=58 714) and twins (n=27 919) born after ART in Denmark, Finland, Norway and Sweden from 1982 to 2007. The ART children were compared with a control group of spontaneously conceived children four-fold the size.
Material and Methods: The malformations were classified using EUROCAT's classification system and grouped by organ system. Logistic regression analyses were used to calculate the odds ratios with adjustment for mother's parity, year of birth, maternal age, child's sex and country.
Results: In the analyses on all ART children only the risk of congenital heart malformations was increased in the adjusted analyses, odds ratio (OR) 1.12, confidence interval (CI) [1.03-1.22]. In the crude analyses, we found ART children to have an increased risk of gastrointestinal, urogenital and abdominal wall defects, OR 1.25 [95%CI 1.06-1.49]; OR 1.36 [95%CI 1.18-1.57] and OR 1.97 [95%CI 1.48-2.61] respectively. When restricting the analyses to singletons, we found that ART increased the risk of both congenital heart malformations, OR 1.20 [95%CI 1.00-1.45]; gastrointestinal malformations, OR 1.56 [95%CI 1.15-2.14] and urogenital malformations, OR 1.49 [95%CI 1.01-2.20] even after adjustment for known confounders.
Conclusion: The risk of congenital malformations in children conceived after ART is only increased for malformations regarding the heart, gastrointestinal and urogenital organ system.
Support: ESHRE; University of Copenhagen; Danish Agency for Science, Technology and Innovation and the Nordic Federation of Obstetrics and Gynecology (NFOG).

FC0302 Fertility Treatment and the Risk of Childhood and Adolescent Mental Disorders

Bjørn Bay (1, 2), Erik L Mortensen (3), Dorte Hvidtjørn (4), Ulrik S Kesmodel (2)
(1) School of Public Health, Section of Epidemiology, Aarhus University, Denmark
(2) The Fertility Clinic, Aarhus University Hospital, Denmark
(3) Institute of Public Health, University of Copenhagen, Denmark
(4) Institute of Public Health, University of Southern Denmark

OBJECTIVE
To assess long-term mental health of children born after fertility treatment by comparing their risk of mental disorders with that of spontaneously conceived children.
METHODS
In a cohort study, information from Danish National Health Registers was cross-linked by the unique personal identification number assigned to all citizens in Denmark.
We included all children born in Denmark from 1995 to 2003 (33,139 children conceived after fertility treatment and 555,828 spontaneously conceived) with follow-up in 2012 when the children were 8-17 years old. The absolute risk (AR) and hazard ratio (HR) of mental disorders were estimated while adjusting for potential confounding variables.
RESULTS
The risk of mental disorders in children born after in vitro fertilization or intracytoplasmic sperm injection was low, and compared to spontaneously conceived children the risk was not increased, except for a marginally significantly increased risk of tic disorders (HR 1.4 (1.0-1.9), AR 0.3%). In contrast, children born after ovulation induction with or without insemination had a low, but significantly increased risks of any mental disorder (HR 1.2 (1.1-1.3), AR 4.1%), autism spectrum disorders (HR 1.2 (1.1-1.4), 1.5%), hyperkinetic disorders (HR 1.2 (1.1-1.4), AR 1.7%), conduct, emotional, or social disorder (HR 1.2 (1.0-1.5), AR 0.8%), and tic disorders (HR 1.5 (1.2-2.0), AR 0.4%). There was no systematically risk related to any specific type of hormonal medication.
CONCLUSIONS
There was an increased risk of mental disorders in children born after OI/IUI, while children born after IVF/ICSI were found to have overall comparable risk with children conceived spontaneously.

FC0303 Results after insertion of synthetic mesh for recurrent Pelvic-Organ prolapse.

Line Winther Gustafson (1), Susanne Greisen (1), Susanne M. Axelsen (1), Karl Møller Bek (1), Marianne Glavind-Kristensen (1)
(1) Pelvic Floor Unit,Dept. of Obstetrics & Gynecology,Aarhus University Hospital, Denmark

Objective
Synthetic meshes kits were introduced in 2005 to reduce recurrence rates after prolapse surgery. However, meshes are accused of serious complications and the debate in 2012 gave rise to great concern among Danish patients. This prospective follow-up study evaluates the objective and subjective outcome after operation with synthetic mesh kit (Prolift™) in patients with recurrent Pelvic-Organ prolapse (POP).
Design
Prospective observational study.
Setting
Department of Obstetrics and Gynecology, Aarhus University Hospital.
Population
Fifty-five women operated from 2005-2012. Mean age at operation was sixty-three years (38;79).
Methods
In 2012 the women were offered an additional clinical examination. Anatomical outcome was evaluated and graded according to the standard defined by the International Continence Society (ICS) (grade 0-4). The patients were asked to fill in symptoms and quality of life (QoL) questionnaires before the examination (Pelvic Floor Distress Inventory (PFDI-20) and Patient Global Impression of Improvement (PGI -I scale)).
Results
No serious operative complications were seen. Mean follow-up were twenty-three months (6:88). Mean previously operations were three (0:7). Objective recurrence rate was 28%, but the re-operation rate was only 2%. Seven women had mesh erosion, but six were asymptomatic and only four were operated. 90 % of the women considered their condition improved after the operation.
Conclusions:
This study demonstrates that the use of synthetic mesh for recurrent prolapse is a save procedure with only minor complications. Furthermore, it provides high subjective satisfaction. Thus, synthetic mesh might still have a place in the treatment of complicated POP.

FC0304 Pelvic organ prolaps surgery, prevalence and promoting factors- a HUNT* study *Health survey in North Trøndelag.

Risa Lonnee-Hoffmann (1,2), Øyvind Salvesen (3), Siv Mørkved (1,2), Berit Schei (1,2)
(1) Institute for Public Health, Norwegain University of Science and Technology
(2) Department of Gynecology, St Olavs University Hospital, Trondheim
(3) Institute for Cancer Research and Molecular Biology, NTNU

Intro: Aim of this study was to assess prevalence of pelvic organ prolapse (POP) surgery in a Scandinavian county and to examine associations with promoting factors for POP.
Methods: Cross- sectional and retrospective data from The Health Survey in Nord-Trøndelag (2006-2008). All women 30 years+ were eligible, 20285 (50.3%) responded by completing questionnaires and attending screening stations. Outcome measures were self- reported POP surgery, age at survey and at surgery, socio-demographic data and information about promoting factors for POP (body mass index (BMI), smoking, chronic lung disease, chronic constipation). Descriptive statistics, survival analysis univariable and multivariable logistic regression were used. Statistical significance was defined as $p \leq 0.01$.
Results (preliminary): POP surgery was reported by 1123 (5.3%) women. Mean age at surgery was 51.6 years (SD14.7). The prevalence of POP surgery below age 40 was 0.7%, 40-59 years 3.1% and 60+, 10.8%. Cumulative incidence by age 85 was 15%. After adjustment for age, BMI and parity, odds ratio (OR) with 95%CI for reporting POP surgery with chronic obstructive pulmonary disease were 2.45(1.59-3.78), for BMI≥25 1.63(1.40-1.90) and for work involving lifting compared to sitting 1.41 (1.08-1.85). Women with chronic constipation had an OR of 1.73 (1.39-2.15) for reporting previous POP surgery. After adjustment, the higher OR for POP surgery among women with asthma fell below significance.
Conclusion: Also Scandinavia has a high prevalence of POP surgery. This study provides epidemiologic evidence for most of the promoting factors for POP to be risk factors for POP surgery, apart from astma and smoking.

FC0305 Attitudes towards embryo donation in Sweden

Kjell Wånggren (1), Jenny Alden (1), Mario Baban (1), Frida Prag (1), Agneta Skoog Svanberg (1)
(1) Dept Women's and Children's Health, Uppsala University, Uppsala, Sweden

Background: IVF-treatment often results in surplus embryos that have to be discarded after the maximal allowed cryo-storage time of five years. These embryos could be donated to other infertile couples lacking both functional oocytes and spermatozoa. The Swedish law does not currently approve treatment with donation embryos. The purpose of this study was to investigate the attitudes towards donation of surplus embryos in Sweden.
Methods: Questionnaires regarding attitudes towards different aspects on embryo donation in Sweden were sent to the staff at the IVF-clinics, 471 infertile couples and 500 women and men in reproductive age in Sweden.
Results: A majority of the respondents, 77% of the IVF-staff / 76% of infertile couples / 75% of women and men in reproductive age, supported donation of embryos to infertile couples. A majority of the participants, 76% / 60% / 51% respectively, stated that donations of embryos should be allowed for research and 42% / 45% / 49% respectively, were positive to donation of embryos to single women.
Conclusions: Embryo donation, from a medical perspective, is a relatively simple procedure, where the difficulty lies mainly in its complexity in terms of legal, moral and ethical aspects. This study demonstrates that a majority of the IVF-staff, infertile couples with surplus embryos and women and men in reproductive age are in favour of embryo donation in Sweden. The result from the study may be of value in deciding on new regulations regarding embryo donation in Sweden.

Key words: attitudes, embryo donation, infertile, ethics, disclosure

FC0306 Is unilateral oophorectomy associated with age at menopause? A population study

Elisabeth K. Bjelland (1.2), Pawel Wilkosz (3,4), Tom G. Tanbo (3,6), Anne Eskild (5,6)
(1) Health Services Research Centre, Akershus University Hospital, Lørenskog, Norway
(2) Division of Mental Health, Norwegian Institute of Public Health, Oslo, Norway
(3) Department of Gynecology, Oslo University Hospital Rikshospitalet, Oslo, Norway
(4) Norwegian Resource Center for Women's Health, OsloUniversity Hospital, Norway
(5) Department of Obstetrics and Gynecology, Akershus University Hospital, Lørenskog, Norway
(6) Institute of Clinical Medicine, University of Oslo, Oslo, Norway

Background There is substantial variation in age at natural menopause. Unilateral oophorectomy implies a significant reduction of the ovarian follicular reserve. Thus, one might expect that the time to menopause is shortened by several years in women who have undergone unilateral oophorectomy.
Purpose To study the association of unilateral oophorectomy with age at menopause.
Material and methods A retrospective cohort study of 23 580 Norwegian women who were included in the population based HUNT2 Survey during the years 1995-1997. Data were obtained by two self-administered questionnaires at study inclusion. We used Cox proportional hazard models to estimate relative risks of menopause according to unilateral oophorectomy status with and without adjustment for birth cohort, parity, smoking, body mass index and age at menarche.
Results Women who had undergone unilateral oophorectomy were younger at menopause [mean 49.6 years; 95% confidence interval (CI): 49.2-50.0)] than women without unilateral oophorectomy (mean 50.7 years; 95% CI: 50.6-50.8) (P < 0.001) (Figure 1). The crude relative risk of menopause was 1.28 (95% CI: 1.15-1.42) and remained after adjustment for the study factors above (adjusted relative risk 1.27; 95% CI: 1.14-1.41).
Conclusions Women who had undergone unilateral oophorectomy entered menopause one year earlier than women with two ovaries intact.
Implications Although the effect of unilateral oophorectomy on age at menopause is similar to that of smoking, it is weaker than anticipated from the loss of ovarian follicular reserve. Thus, compensatory mechanisms may occur in the remaining ovary.

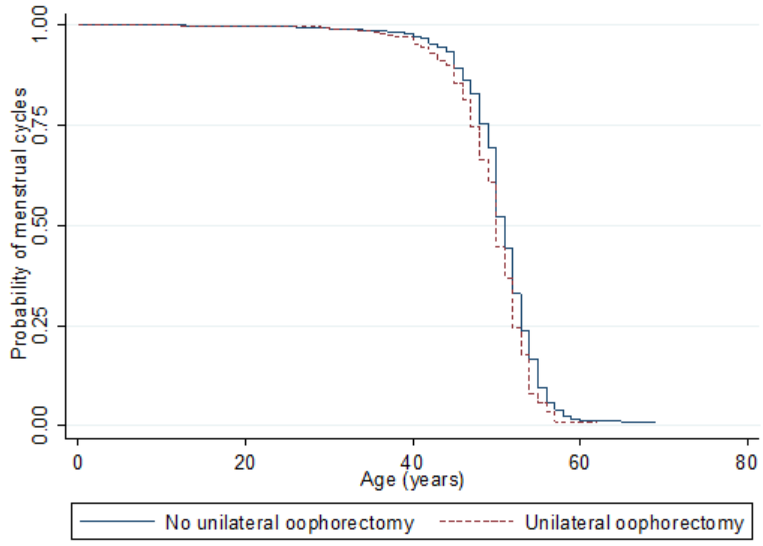


Figure 1. Kaplan-Meier survival estimates by unilateral oophorectomy among women <70 years of age in the HUNT2 Survey (n=23 580).

FC0307 Incretin function in adult offspring of women with diabetes in pregnancy

Louise Kelstrup (1, 2), Tine Dalsgaard Clausen (4), Elisabeth Mathiesen (1,3), Torben Hansen (5,6), Jens Juhl Holst (7), Peter Damm (1,2)
(1) Center for Pregnant Women with Diabetes, Rigshospitalet, Copenhagen
(2) Dept. of Obstetrics, Rigshospitalet, Copenhagen
(3) Dept. of Endocrinology, Rigshospitalet, Copenhagen
(4) Department of Gynecology and Obstetrics, Nordsjællands Hospital Hillerød
(5) Marie Krogh Center for Metabolic Research, University of Copenhagen, Denmark
(6) Faculty of Health Sciences, University of Southern Denmark
(7) The Novo Nordisk Foundation Center for Basic Metabolic Research, University of Copenhagen, Denmark

Background and Aim:
Fetal exposure to maternal diabetes is associated with increased risk of pre-diabetes and type 2 diabetes (T2DM) in the offspring. The pathogenesis of T2DM seems to involve dysfunction of the incretin hormones glucose-dependent insulinotropic polypeptide (GIP) and glucagon-like peptide-1 (GLP-1), as well as hyperglucagonemia. Our aim was to investigate the levels of the incretin hormones GIP, GLP-1 and glucagon in adult offspring exposed to intrauterine hyperglycemia.

Material:
A cohort of 587 Caucasian offspring, without known diabetes was followed up at the age of 18-27 years. We included two groups exposed to maternal diabetes in *utero*: offspring of women with gestational diabetes mellitus (O-GDM) or type 1 diabetes (O-T1DM). Two reference groups were included: offspring of women with risk factors for GDM, but normo-glycemia during pregnancy (O-NoGDM) and offspring from the background population (O-BP). The subjects underwent a 75-g oral glucose tolerance test (OGTT) with venous blood samples at 0, 30, 120 min.

Result:
Significantly lower levels of GLP-1 in the fasting state was found in the 2 diabetes-exposed groups (O-GDM and O-T1DM) compared to O-BP (p=0.032 and 0.004 respectively). The levels of glucagon during OGTT (time=30 min.) showed a tendency towards higher level in O-GDM compared to the unexposed groups (O-NoGDM and O-BP). No association between levels of GIP and exposure status was found.

Conclusion:
Reduced levels of GLP-1 in the fasting state and increased levels of glucagon during OGTT may contribute to the increased risk of glucose intolerance among adult offspring born to women with diabetes during pregnancy.

FC0308 Premenstrual irritability strongly related to absence of right sided dominance in serotonin activity asymmetry of the dorsolateral prefrontal cortex

Olle Eriksson (1), Ulf Olsson (2), Anders Wall (3), Ina Marteinsdottir (4), Maria Holstad (5), Hans Ågren (6), Per Hartvig Honoré (7), Bengt Långström (8), Tord Naessén (1)
(1) Dept. of Women's and Children's Health, Uppsala University, Uppsala, Sweden
(2) Unit of Applied Statistics and Mathematics, Sw. Univ. Agr. Sci., Uppsala, Sweden
(3) Dept. of Radiology, Oncology and Radiation Sciences, Uppsala University, Sweden
(4) Division of Neuroscience, Dept. Clin. Exp. Med., Linköping University, Sweden
(5) Dept. of Neuroscience, Psychiatry Unit, Uppsala University, Uppsala, Sweden
(6) Institute of Neuroscienc and Physology, University of Gothenburgh, Sweden
(7) Dept. of Drug design and Pharmacology, University of Copenhagen, Denmark
(8) Dept. of Biochemistry and Organic Chemistry, Uppsala University, Uppsala, Sweden

Study objective: To investigate potential quantitative and qualitative differences in brain serotonin activity between women with premenstrual dysphoria (PMD) and asymptomatic controls.
Background: Serotonin augmenting drugs alleviate premenstrual mood symptoms in the majority of women with PMD, indicating intrinsic differences in brain serotonin activity compared to asymptomatic women.
Methods used: Positron emission tomography with the immediate precursor of serotonin, 5-hydroxytryptophan, radiolabelled with C11, was done in the follicular and luteal phase of 12 PMD and 9 control women. Brain radioactivity – a proxy of serotonin synthesis and usage – was measured in 9 regions of interest (ROIs).
Summary of results: There were no significant quantitative differences in brain radioactivity between the groups for any of the two menstrual phases in any of the 9 ROIs. Multivariate analyses did reveal a significant qualitative difference between the groups: Asymptomatic control women showed a strong right sided dominance in dorsolateral prefrontal cortex serotonin activity which PMD women lacked (adjusted p=0.0056). Phase changes in this asymmetry (lut-foll) correlated with changes in self ratings of 'irritability' for the entire group (r_s= -0.594, p = 0.005).
Conclusion: Absence of right sided dominance in serotonin activity asymmetry of the dorsolateral prefrontal cortex is strongly related to premenstrual irritability. A causal relationship here seems plausible.

FC0309 The consistency of experts' evaluation of obstetric claims for compensation

Stine Andreasen (1,2), Bjørn Backe (3), Stian Lydersen (4), Kjell Øvrebø (5), Pål Øian (2,6)
(1) Department of Obstetrics and Gynaecology, Nordlandssykehuset, Bodø
(2) Department of Clinical Medicine; University of Tromsø, Norway
(3) Institute for Laboratory Medicine, NTNU, Trondheim, Norway
(4) Regional Centre for Child and Youth Mental Health and Child Welfare, NTNU, Tron
(5) Department of Surgery, Haukeland University Hospital, Bergen, Norway
(6) Department of Obstetrics and Gynaecology, University Hospital of North Norway

Objective The aim of this study was to investigate the consistency of experts' evaluation of different types of obstetric claims for compensation, concerning negligence and causality between the negligence in care provided and the patient injury.
Design Inter-rater reliability study of obstetric claims for compensation.
Settings Medical experts' evaluation in The Norwegian System of Compensation to Patients.
Sample The 15 most frequently used medical experts were asked to evaluate 12 obstetric claims applied for compensation.
Methods Inter-rater agreement was assessed by absolute agreement, Fleiss' kappa statistic and Gwet's AC1.
Main outcome measures Consistency in evaluation of negligence, and causality between negligence and patient injury.
Result In the experts' evaluation of negligence and causality, they demonstrated moderate consistency (Fleiss' kappa=0.47/AC1 0.52). There was an increased level of agreement in clinical scenarios with well documented diagnostic criteria and guidelines, including shoulder dystocia and asphyxia with low Apgar score and metabolic acidosis.
Conclusion We found only fair to moderate level of agreement in experts' evaluation of obstetric claims for compensation. However, the agreement was higher if there were established guidelines for the obstetrical management.

Free Communication 04 - Obstetrics

FC0401 Single compared with double layer of closure and the risk of uterine rupture

Susanne Hesselman (1,2), Ulf Högberg (1), Katarina Ekholm-Selling (1), Eva-Britta Råssjö (2), Maria Jonsson (1)
(1) Department of Women's and Children's Health Uppsala University, Uppsala, Sweden
(2) Centre for Clinical Research Dalarna, Falun, Sweden

A previous caesarean section is the most important risk factor for uterine rupture in a subsequent delivery and the risk may be dependent on the surgical technique used for uterine closure.
The objective of the study was to compare single with double layer closure of the uterus and to identify other risk factors for uterine rupture in women attempting vaginal birth after one prior caesarean delivery.

Methods

Population-based registers were linked to data from delivery records of 19,604 nulliparous women delivered by caesarean section in the years 2001-2007 and 7,683 attempting vaginal birth in their second delivery. Logistic regression was used to estimate the risk of uterine rupture expressed as odds ratio (OR) with 95% confidence interval (CI)

Results

Uterine rupture during labour occurred in 103 (1.3%) women. There was no increased risk of uterine rupture when single was compared with double layer closure of the uterus (adjusted OR 1.17 95% CI 0.78-1.76). Maternal factors associated with uterine rupture were age ≥35 years and height ≤160 cm. Factors from the first delivery associated with uterine rupture were infectious morbidity and giving birth to an infant large for gestational age. Risk factors from the second delivery were induction of labour, use of epidural analgesia and birth weight ≥ 4500 g.

Conclusions There was no significant difference in the rate of uterine ruptures when single layer closure was compared with double layer closure of the uterus.

FC0402 Additional treatment with natural progesterone prolongs gestation in women with preterm labour

Ylva Vladic Stjernholm (1), Vladic Tomislav (1), Marchini Giovanna (1)
(1) Department of Women´s s and Children´s Health, Karolinska University Hospital and Karolinska Institute

Background: Prophylactic treatment with 17hydroxyprogesterone or natural progesterone (P) have been shown to prevent the incidence of preterm birth (PTB) and to improve early neonatal outcome in asymptomatic women with a previous PTB or a short cervical length (CL) at midpregnancy. Since only 10% of spontaneous PTB occur in women with a previous PTB and less than 2% of asymptomatic women have a CL < 25 mm at midpregnancy, the criteria for initiating prophylactic treatment remains uncertain. Only a few studies have investigates the effect of therapeutic P treatment after the onset of uterine contractions. The goal of this study was to investigate whether additional treatment with P prolongs the latency to delivery as compared to routine tocolysis in women with preterm labour.
Material and Methods: Women with a singleton pregnancy, preterm labour between 24 - 34 weeks, intact fetal membranes and a cervical length < 25 mm were randomized to additional treatment with daily doses of P in vaginal gel (n=15) or a placebo gel (n=17) after intravenous tocolysis.
Results: The latency to delivery was increased by 7 weeks in the P group and by 6 weeks in the placebo group. The latency to delivery in the reference group (all medical records regarding PTB between 22+0 to 36+6 wks during 2012 were investigated) who received routine tocolysis alone was less than 4 days.
Conclusion: Additional treatment with P significantly increased the latency to delivery in women with extreme and early preterm labour as compared to intravenous tocolysis alone. A treatment with a placebo gel increased latency in a manner comparable to P.

FC0403 Development in adverse perinatal outcomes following a more offensive birth induction practice – a historical cohort study.

Mette Hedegaard (1), Øjvind Lidegaard (1), Charlotte Wessel Skovlund (1), Lina Steinrud Mørch (1), Morten Hedegaard (2)
(1) Department of Gynaecology, Rigshospitalet, University of Copenhagen.
(2) Department of Obstetrics, Rigshospitalet, Denmark.

Objective From 2009, Danish national guidelines recommended pregnant women to be offered induction at 41+3-5 in order to ensure delivery before 42 weeks. The aim of this study was to asses the development in eight adverse perinatal outcomes before and after implementation of the guideline.
Design Historical cohort study.
Setting Denmark.
Participants Children born after 37 weeks from 2000-12.
Outcome measures Asphyxia indicators (umbilical cord pH < 7.0, Apgar score <7/5), potential manifestations of asphyxia (admission to NICU, neonatal death, cerebral palsy) and prevention of macrosomia (birth weight≥4500 grams, shoulder dystocia, peripheral nerve injury).
Results Included were 770,926 live born children. Induction of labour after 37 gestational weeks increased from 9.7% in 2000-02 to 22.5% in 2011-12 (p<0.001). Umbilical cord pH<7.0 was reduced by 23%, while Apgar score less than 7 at five minutes did not change significantly through the study period. Admission rate to neonatal intensive care units increased by 56%. In contrast, neonatal death decreased by 46%, while cerebral palsy decreased by 26%. Children born with birth weight ≥4500 grams fell by one third. Though a rise in shoulder dystocia of 32% was seen, peripheral nerve injuries decreased by 43%, possibly indicating improved focus of management of the problem. Adjustments were made for potential confounders, but this only altered the results by less than 5%.
Conclusion The results of this study suggest an overall improvement in perinatal outcomes in children born from 37 weeks after a more offensive induction practice was implemented.

FC0404 Retained placenta is associated with defective placentation disorders- a national register-based study

Margit Endler (1), Sissel Saltvedt (2), Olof Stephansson (3), Sven Cnattingius (4), Anna-Karin Wikström (5)
(1) Department of Clin Science and Education, Karolinska Institutet, Södersjukhuset
(2) Department of Women's and Children's Health, Karolinska University Hospital
(3) Department of Medicine, Clinical Epidemiology Unit, Karolinska Institutet
(4) Department of Medicine, Clinical Epidemiology Unit, Karolinska Institutet
(5) Department of Women's and Children's Health, Uppsala University

Objective: To evaluate if defective placentation disorders, i.e. preeclampsia, stillbirth, small-for-gestational-age (SGA) and spontaneous preterm birth, are associated with risk of retained placenta.
Design: Population-based cohort study.
Setting: Sweden.
Population: Primiparous women in Sweden with singleton vaginal deliveries between 1997 and 2009 at 32-41 gestational weeks (n= 386 607), without placental abruption or infants with congenital malformations.
Methods: Risks were calculated as odds ratios (OR) by unconditional logistic regression with 95% confidence intervals (CI) after adjustments for maternal, delivery and infant characteristics.
Main outcome measure: Retained placenta, defined by presence of both a diagnostic code (of retained placenta) and a procedure code (for manual removal of the placenta).
Results: The overall rate of retained placenta was 2.17%. Risk of retained placenta was increased for women with preeclampsia (adjusted OR [AOR]: 1.37; 95% CI: 1.21-1.54), stillbirth (AOR: 1.71; 95% CI: 1.28-2.29), SGA birth (AOR: 1.47; 95% CI: 1.28-1.70), and spontaneous preterm birth (week 32-34 AOR: 1.55; 95% CI: 1.37-1.75; week 35-36 AOR: 2.35; 95% CI: 1.97- 2.81). The risk was further increased for women with preterm preeclampsia (AOR: 1.69; 95% CI: 1.25-2.28) and preterm SGA birth (AOR: 2.19; 95% CI: 1.42-3.38).
Conclusion: Defective placentation disorders are associated with increased risk of retained placenta. Whether these relationships indicate a common pathophysiology remains to be investigated.

FC0405 Anthropometrics and body composition in children of obese women: a randomized controlled trial (the Lifestyle in Pregnancy and Offspring [LiPO] study).

Mette Tanvig (1,2,3), Christina A. Vinter (2,3), Jan S. Jørgensen (2,3), Sonja Wehberg (3,4), Per G. Ovesen (5), Ronald F. Lamont (2,6), Henning Beck-Nielsen (1,3), Henrik T. Christesen (3,7), Dorte M. Jensen (1,3)
(1) Department of Endocrinology, Odense University Hospital, Denmark
(2) Department of Gynecology and Obstetrics, Odense University Hospital, Denmark
(3) Institute of Clinical Research, University of Southern Denmark, Odense, Denmark
(4) Centre for Clinical Epidemiology, Odense University Hospital, Denmark
(5) Department of Gynecology and Obstetrics, Aarhus University Hospital, Denmark
(6) Division of Surgery, University College London, UK
(7) Hans Christian Andersen Children´s Hospital, Odense University Hospital, Denmark

Objective: In obese women; 1) to assess whether lower gestational weight gain (GWG) during pregnancy in the lifestyle intervention group of a randomized controlled trial (RCT) resulted in differences in offspring anthropometrics and body composition, and 2) to compare offspring outcomes to a reference group of children born to lean women. Research design and methods: The LiPO study was an offspring follow-up of a RCT with a lifestyle intervention during pregnancy. The trial was completed by 301 women who were eligible for follow-up. In addition, a group of children born to women with normal weight were included as a reference group. At 2.8 (range 2.5-3.2) years, anthropometrics were measured in 157 children of the RCT mothers and in 97 reference group children. Body composition was estimated by Dual Energy X-ray (DEXA). Results**:** No differences between randomized groups were seen in mean (95% C.I.) BMI Z-score (intervention group 0.06 (-0.17; 0.29) *vs.* controls -0.18 (-0.43; 0.05)), in the percentage of overweight or obese children (10.9% *vs.* 6.7%), in other anthropometrics, or in body composition values by DEXA. Outcomes between children from the RCT and the reference group children were not significantly different. Conclusions: The RCT with lifestyle intervention in obese pregnant women did not result in any detectable effect on offspring anthropometrics or body composition by DEXA at 2.8 years of age. This may reflect the limited difference in GWG between intervention and control groups. Offspring of obese pregnant women from the RCT were comparable to offspring of lean pregnant women.

FC0406 Can ultrasound predict vaginal delivery in nulliparous women with prolonged first stage of labour?

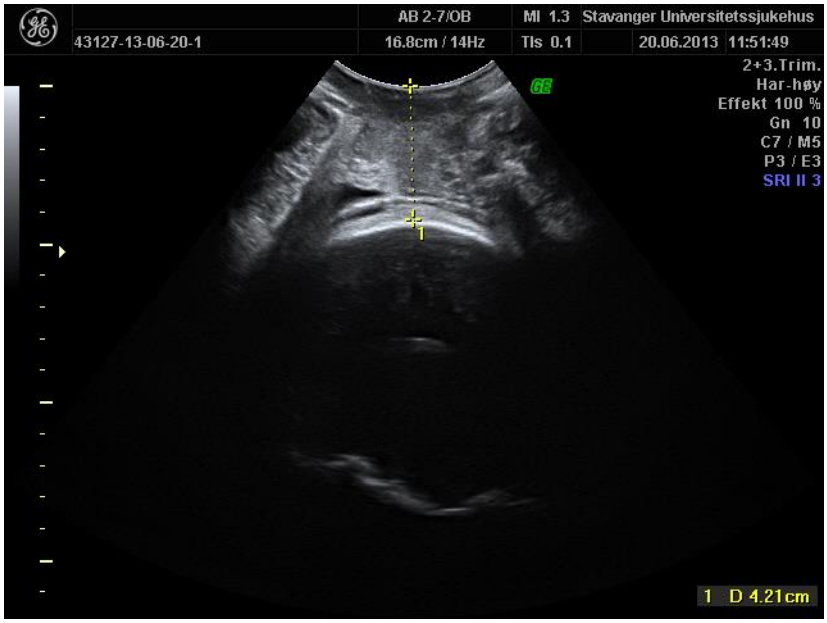
Torbjørn Moe Eggebø (1,2), Wassim Hassan (3), Kjell Åsmund Salvesen (4), Elsa Lindtjørn (1), Christoph Lees (3,5)
(1) Department of Obstetrics and Gynecology, Stavanger University Hospital, Norway
(2) National Center for Fetal Medicine, Trondheim University Hospital, Norway
(3) Fetal Medicine Department, Addenbrooke's Hospital, Cambridge, UK
(4) Department of Obstetrics and Gynecology, Skåne University Hospital, Sweden
(5) Centre for Fetal Care, Queen Charlotte's and Chelsea Hospital, London, UK

Objectives: To investigate whether ultrasound assessments of fetal position and level can predict a vaginal delivery in nulliparous women with prolonged first stage labour.

Methods: 150 women were included in a prospective observational two-centre study in Stavanger (Norway) and Cambridge (UK) from January 2012 to April 2013. Ultrasound examinations were performed when the labour was classified as prolonged according to WHO or NICE guidelines. Fetal level was assessed in a transperineal scan as head-perineum distance (HPD) and fetal head position in a transabdominal ultrasound recorded as halfhourly divisions. Positions ≥04.00 and ≤08.00 were recorded as occiput posterior. Main outcome was cesarean section vs. vaginal delivery. The results were analyzed using ROC-curves, cross-table analyses and logistic regression.

Results: HPD predicted a vaginal delivery with 81% (95% CI 0.73-0.89%); p<0.01 under the ROC-curve. Delivery was vaginal in one woman included with HPD <20 mm, in 15/16 (94%) women with HPD 21–30 mm, in 61/67 (91%) women with HPD 31–40 mm; in 29/49 (59%) women with HPD 41–50 mm, in 4/15 (27%) women with HPD
51–60 mm and in 1/2 (50%) women with HPD >60 mm. In a multivariable logistic regression analysis, HPD (OR 4.92; 95%CI1.54–15.80), non-occiput posterior position (OR3.36; 95%CI 1.24–9.12) and spontaneous onset of labour (OR4.44 95%CI 1.42–13.89) significantly predicted vaginal delivery.

Conclusions: Ultrasound examinations might add important information to clinicians in nulliparous women with prolonged first stage labour.



FC0407 Birth outcomes in women with inflammatory bowel disease

Gabriella Bröms (1), Fredrik Granath (1), Marie Linder (1), Olof Stephansson (1,2), Maria Elmberg (1), Helle Kieler (1)
(1) Centre for pharmacoepidemiology/Clinical epidemiology, Karolinska institutet
(2) Department of Women's and Children's Health, Karolinska Institutet

Objectives: To assess risks of preterm delivery (before 37 weeks' of gestation), small for gestational age (SGA, 2 standard deviations) and stillbirth in women with inflammatory bowel disease (IBD) according to disease activity and drug exposure.
Methods: We included all 470,110 singleton births in Sweden from July 2006 to December 2010; 1,220 to women with Crohn's disease and 1,833 births to women with ulcerative colitis. Data were obtained from National Health Registers. Women with IBD were categorized as: 1) no drug exposure or clinical events, 2) maintenance therapy and 3) corticosteroids, surgery or admission to hospital because of flaring disease. Logistic regression was used to calculate odds ratios (aOR) adjusted for maternal age, parity, smoking and comorbidity with 95% confidence intervals.
Results: There were increased risks of preterm delivery for both ulcerative colitis (aOR 1.78, 1.49-2.13) and Crohn's disease (aOR 1.65, 1.33-2.06). The risks persisted when excluding induced delivery and cesarean section. Risks were higher among women who had been exposed to azathioprine, adjusted for disease activity. Flaring disease increased risks of preterm delivery almost threefold, and flares in both early and late pregnancy, almost fourfold. For Crohn's disease, risks of SGA and stillbirth were increased, particularly among those with flaring disease (aOR 2.75, 1.72-4.38 and aOR 4.48, 1.67-11.90).
Conclusions: Women with IBD were at increased risks of spontaneous preterm delivery. Flaring disease and azathioprine treatment were associated with increased risks. For women with flaring Crohn's disease, risks of SGA and stillbirth were increased.

FC0408 Traction force during vacuum extraction: objectively measured and self estimated force.

Kristina Pettersson (1), Gunilla Ajne (2), Magnus Westgren (3)
(1) Karolinska University hospital
(2) Karolinska University hospital
(3) Karolinska Institutet, Karolinska University hospital, Clintec

Objective: To investigate the traction force applied during vacuum extraction (VE), and to test obstetricians´ ability to assess force.
Methods: The design was a two-phased observational study. Part 1 included 200 term cases of VE in the delivery ward at a University hospital clinic. Part 2 included 130 obstetricians in a simulated setting. An intelligent handle was used to measure force in an otherwise unaltered clinical setting. Clinical data was collected from medical records. In part two, self rated force was compared to actually pulled force in a fictive setting.
Results: Measured median (min-max) peak force for minimum, average and excessive clinical extraction was 176(5-360)N, 225(115-436)N and 241(164-452)N respectively. Total force (Ns) followed peak force with increasing heaviness. In the fictive setting, the actually exerted force was about double the operators quantitative estimation, whereas actual clinical forces were about four times as high. The clinical VE showed peak forces above 11 kg in 92% of the cases and 34% were above 22 kg. Perinatal outcome was overall good. No correlation was found between pH in umbilical artery and traction force. Mild HIE was diagnosed in 4 cases, 3 occurring after excessive traction force.
Conclusions: Overall, unexpectedly high levels of traction force were found. Since obstetricians seem to underestimate their applied force, objective documentation with instantaneous feed back of the extraction procedure may be valuable. From this study, no conclusions can be made about the predictive clinical value of measuring force traction.

FC0409 Caesarean Delivery in Nordic countries 1991 to 2011

Aura Pyykönen (1), Mika Gissler (2), Finn Egil Skjeldestad (3), Kari Klungsøyr (4), Susanne Albrechtsen (5), Ellen Løkkegaard (6), Steen Rasmussen (6), Thomas Bergholdt (6), R Bjarnadóttir (7), Karin Gottvall (8)
(1) Helsinki University Central Hospital, Department of Obstetrics and Gynecology
(2) THL National Institute for Health and Welfare, Information Department, Helsinki
(3) Department of Clinical Medicine, University of Tromsø, Tromsø, Norway
(4) Medical Birth Registry of Norway, National Institute of Public Health, Oslo
(5)Department of Obstetrics and Gynecology, Haukeland
(6) University Hospital Department of Obstetrics and Gynecology, Nordsjælland Hospital, Copenhagen
(7) The Icelandic Birth Registry and Department of Obstetrics and Gynecology
(8) The Swedish National Board on Health and Welfare, Stockholm, Sweden

Objective: To report the changes in CD (caesarean delivery) rates in Nordic countries within last two decades using the 10 Robson groups.
Design and Setting: Retrospective population-based register study with data from national medical birth registries.
Population: All six million deliveries in Nordic countries 1991 to 2011 (Finland, Denmark, Iceland, Norway, Sweden)
Methods: Both the crude and the age- and Robson group-adjusted CD rates were analysed for each country and compared using logistic regression with Norway as reference.
Results: The rise in the total CD rates has levelled off in most Nordic countries after 2000 (Figure 1). However, there are significant differences between the crude and the standardized CD rates (Fig 2 and 3). From 2000 to 2011 the standardized CD rates were significantly higher than the crude ones in Denmark, Iceland and Sweden (Fig 2). Analysing the years 2007 to 2011 only, the results remained similar for Denmark and Sweden, but in Iceland both the crude and the standardized rates were no longer significantly increased (Fig 3).
Conclusions: Iceland sets an example of a country where the implementation of Robson groups has changed the CD profile. When analysing CD rates, the use of the Robson groups highlights the changes over time and the differences between the countries not seen when focusing on only the crude CD rate.

Appendix:
Figure 1: Caesarean delivery (CD) rate in Nordic countries (%)

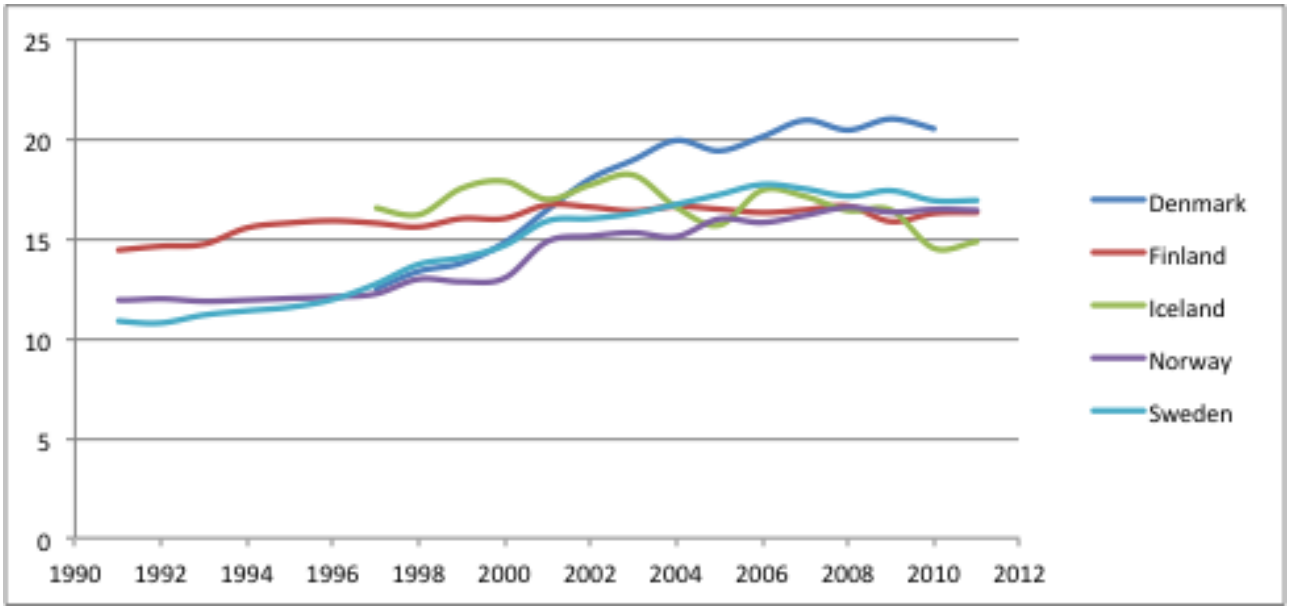


Figure 2: Crude and adjusted odds ratios with 95% confidence intervals for Caesarean section in the five Nordic countries 2000 to 2011. Norway=1.00

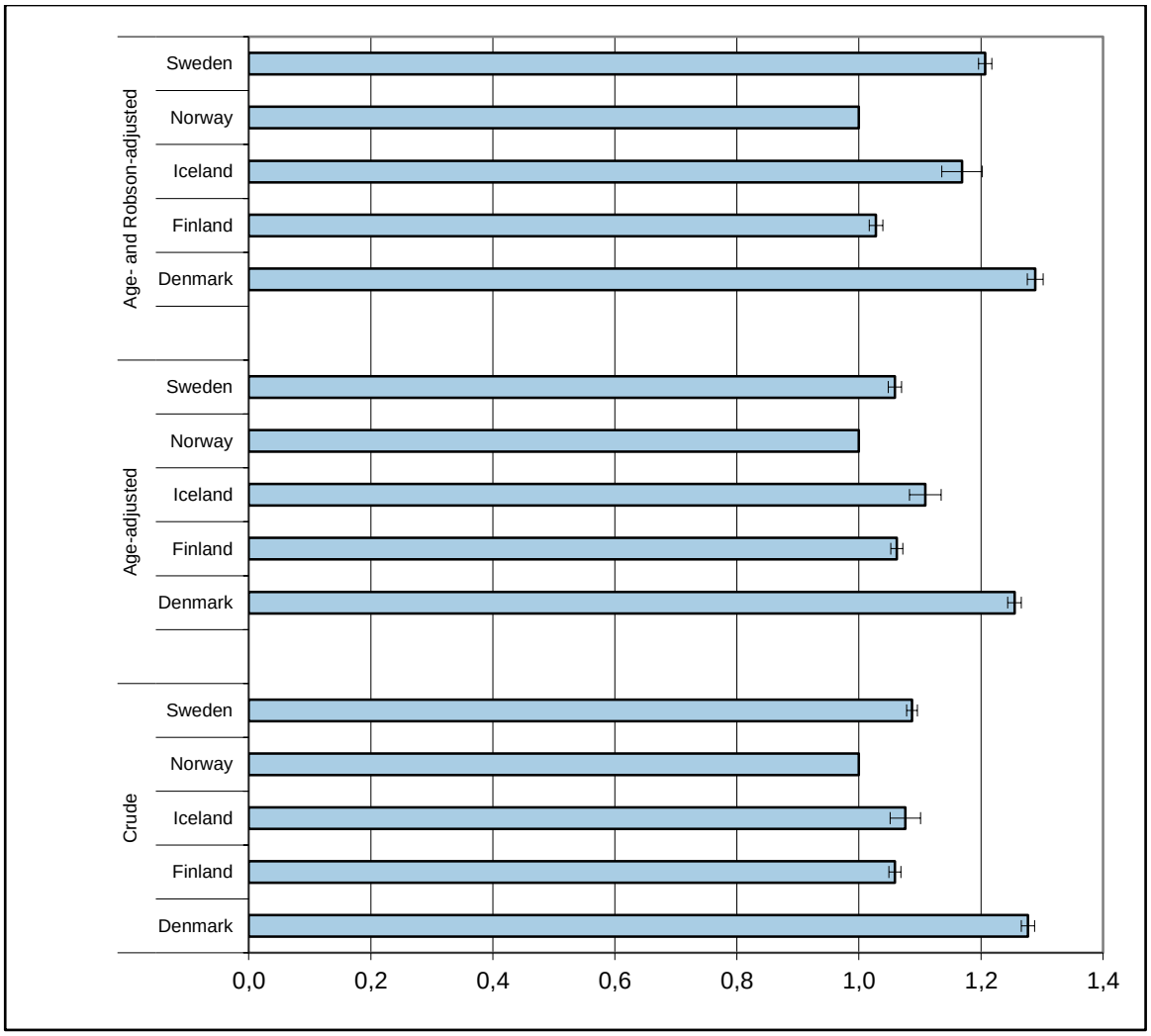
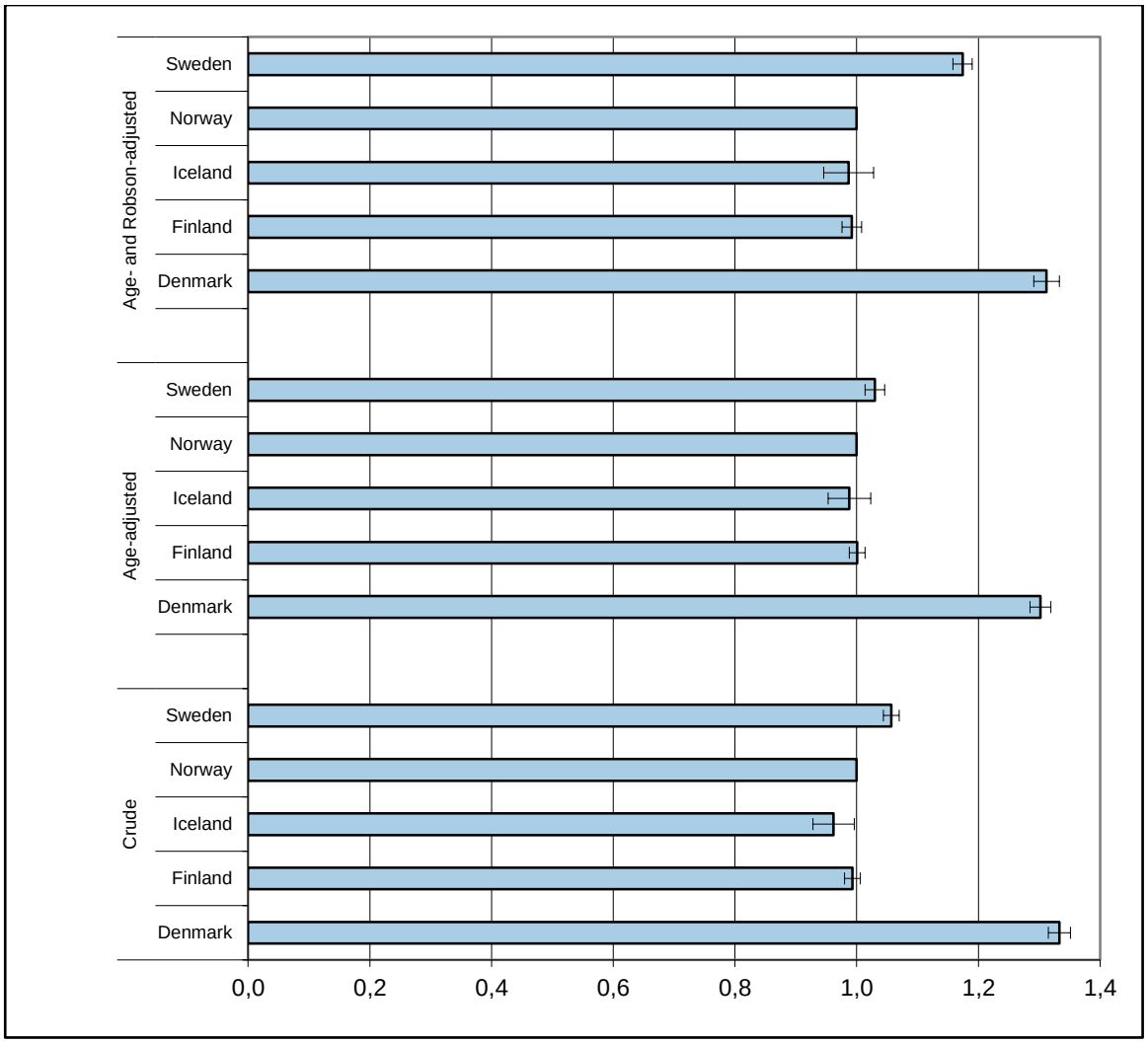


Figure 3: Crude and adjusted odds ratios with 95% confidence intervals for Caesarean section in the five Nordic countries 2007 to 2011. Norway=1.00



Free Communication 05 - General gynecology & mixed

FC0501 Strong association between violence exposure and sexual ill-health and risk-behaviour irrespective of type of violence

Helena Blom (1), Ulf Högberg (2), Ingela Danielsson (1)
(1) Dept of Clinical Sciences, Obstetrics and Gynecology, Umeå University, Umeå, Sweden
(2) Dept of Women's and Children's Health, Uppsala University, Uppsala, Sweden

Background: Violence exposure is recognized as a global public health issue, with strong associations with physical and mental ill-health. Intimate partner violence and primarily sexual violence have shown associations to sexual ill-health.
Aim: To study the association between different types of violence exposure and sexual ill- health and sexual risk behaviour.
Methods: A cross-sectional study in all Senior High Schools in a middle sized town in Sweden. 1658 women and 1589 men aged 15-22 participated (80 % of eligible youth). The students answered a questionnaire with validated questions on emotional, physical and sexual violence exposure (NorAQ). Five variables on sexual ill-health/risk-behaviours were used: experience of pregnancy, Chlamydia infection, early sex debut, no use of contraceptives at last intercourse, and several sex-partners. Proportions, Odds and Adjusted Odds ratios (OR/AOR) with (95 % CI) were calculated.
Results: ORs were raised for most sexual ill-health variables/sexual risk behaviours in men and women irrespective of type of violence exposure. The ORs for experience of pregnancy in women exposed to lifetime emotional violence were 3.0 (2.1-4.2) and in men 1.8 (1.2-2.5). Corresponding ORs for physical violence exposure were 3.1 (2.2-4.4) and 2.0 (1.4-2.7) and for sexual violence 3.3 (2.2-4.5) and 5.3 (2.6-11). Specifically the multi-abused youth had considerable raised ORs. The multi-abused women had ORs for having experience of pregnancy 4.3 (CI 2.9-6.3) and men 3.1 (CI 2.0-4.6).
Conclusion: Youth sexual ill-health and risk-behaviour is strongly correlated with all kinds of violence exposure. This should be taken into consideration when counselling youth.

FC0502 Male partners of nulliparous women with severe fear of childbirth

Elsa Lena Ryding (1), Hanna Rouhe (2), Katariina Salmela-Aro (3), Ejla Halmesmääki (2), Terhi Saisto (2)
(1) Karolinska Institutet, Dept Women's and Children's Health, Stockholm, Sweden
(2) Helsinki University Hospital, Dept Obstetrics and Gynecology, Helsinki, Finland
(3) Helsinki University, Dept Psychology, Helsinki, Finland

Group psychoeducation with mindfulness exercises during pregnancy has been shown to lower the rate of cesarean section and promote positive motherhood in nulliparous women with severe fear of childbirth (FOC) (Rouhe H et al., BJOG, 2013, 120, 75-84. However, 13.0% (intervention) vs. 15.3% (controls) had a possible post-traumatic stress disorder (PTSD) following birth.
Men can also suffer from FOC. Little is known about the partners of women with severe FOC.
Methods:
In all 371 nulliparous women with a Wijma Delivery Expectancy Questionnaire (W-DEQ) score of ≥100 were randomized to intervention or standard care. Their partners (all male) filled in the W-DEQ during pregnancy and 3 months postpartum, and the Edinburg Postnatal Depression Scale (EPDS) and the Traumatic Event Scale (TES) 3 months postpartum.
Results:
During pregnancy, 139 men participated, and at 3 months postpartum 154. The mean score of W-DEQ in pregnancy was 49.8 (SD 16.5), and postpartum 34.7 (SD 18.3); no man scored ≥100. No man reported a possible PTSD. There was no difference in the scores of W-DEQ, EPDS or TES between men in the intervention group and the controls. Higher postnatal FOC was seen in men who had a higher level of FOC already in pregnancy, OR 1.07, 95% CI 1.04-1.10, and after an emergency cesarean section, OR 6.10, 95% CI 2.39-15.62.
Conclusion:
Male partners of nulliparous women with severe FOC neither seem to suffer from FOC, nor do they report PTSD following childbirth. An emergency cesarean section is related to postnatal FOC in men.

FC0503 Simplifying medical abortion using self-assessment for treatment success: a multicentre randomised controlled trial

Kevin Oppegaard (1), Erik Qvigstad (2), Christian Fiala (3), Oskari Heikinheimo (4), Lina Benson (5), Kristina Gemzell-Danielsson (6)
(1) Dept. of Gynaecology, Helse Finnmark, Klinikk Hammerfest, Norway
(2) Faculty of Medicine, Dept. of Gynaecology, OUS, Norway
(3) GynMed Clinic, Mariahilfergürtel 37, 1150 Vienna, Austria
(4) Dept. Obstetrics and Gynaecology, Helsinki University Central Hospital, Finland
(5) Dept. of Clinical Science and Education, Karolinska Institutet, Sweden
(6) Dept. of Women's and Children's Health, Karolinska Institutet, Sweden

Background In the last twenty-five years, medical abortion using mifepristone and prostaglandins has been established as a highly effective, safe and acceptable method to terminate pregnancy. We investigated whether the method can be further simplified by self-assessment of the treatment outcome.

Methods This randomised-controlled, non-inferiority trial was carried out in four clinics in Austria, Finland, Norway and Sweden, between August 16, 2011 and January 31, 2013. Adult (≥ 18 years) women who had requested termination of an unwanted pregnancy of ≤ 63 days of gestation by means of mifepristone followed by home administration of misoprostol were randomised (with computerised block randomisation, block size 10), in a 1:1 ratio to routine clinical follow-up at the clinic at one to three weeks after the abortion *vs.* self assessment at home using a commercially available semi-quantative urine hCG-test followed by a telephone consultation. The primary outcome was the percentage of women with complete abortion not requiring surgical intervention or additional treatment with mifepristone and/or misoprostol or methylergometrine to complete the abortion within three months of the initial treatment. Primary analysis was by intention-to-treat. This trial is registered with the ClinicalTrials registry, number NCT01487213.

Findings A total of 924 women were randomised (458 to home self assessment and 466 to routine follow-up at the clinic) and were included in the intention-to-treat analysis. The rate of women having completed the abortion without extra treatment within three months of the initial treatment was 94% (430 out of 458) in the self-assessment group and 95% (441 out of 466) in the routine follow-up group (crude risk difference for self-assessment *vs.* routine follow-up group -0·8 [95% CI -3·8-2·3]), i.e. within the specified non-inferiority margin. The rate of women who had surgical treatment after the abortion was 4% and was equally distributed between the two groups (p=0.738). Of the women randomized to the self-assessment group 91% (310 out of 340) found the semi-quantitative urine hCG-test easy to use and 82% (272 out of 330) would prefer the same method in any future abortion. In contrast, 59% (190 out of 323) of women who were randomised to routine follow-up at the clinic would prefer the same method if they had a future medical abortion (p<0·001). Three on-going pregnancies in the home self-assessment group were initially undetected using the semi-quantative urine hCG-test.

Interpretation Women are able to undergo a medical abortion safely with home use of misoprostol at ≤ 63 days of gestation followed by self-assessment of the treatment outcome or without routine follow-up afterwards and are able to decide for themselves whether they need a follow-up. Self-assessment is resource-saving, a step in demedicalising abortion and is preferred by women.

Funding Nordic Federation of Obstetrics and Gynecology, European Society of
Contraception, Helsinki University Central Hospital research funds, Helse Finnmark research funds, Swedish Research Council (K2010-54X-14212-09-3) and support provided through the regional agreement on medical training and clinical research
(ALF) between Stockholm County Council and Karolinska Institutet.

FC0504 Ectopic pregnancy in Iceland 2000-2009.

Jens A. Gudmundsson (1), Reyir T. Geirsson (1), Áslaug Baldvinsdóttir (2)
(1) Dept. of Obstetrics and Gynecology, Landspitali University Hospital, Iceland
(2) University of Iceland

We have evaluated the 10-year incidence and changes in treatment of ectopic pregnancy in Iceland (years 2000-2009).
Materials and methods: Information was gathered about all diagnosed cases,, method of treatment and length of hospital stay. Annual incidence was calculated and changes in incidence, methods of treament and hospital stay compared between the 5-year periods 2000-2004 and 2005-2009.. **Results:** The average annual incidence was 15.6/1000 pregnancies and 12.9/10000 women during the whole study period. There was a significant reduction of the annual incidence between the two 5-year periods from 17.3 to 14.1/1000 pregnancies ($p<0.01$) and 14.1 to 11.7/10000 women ($p<0.01$). Surgery was the first treament in 94.9% of the women, methotrexate in 3.2% and expectant management in 1.9%. The proportion of surgically treated women went from 98.0% to 91.3% between the 5-year periods concomitant to increased medical treatment from (0.4% to 6.4%; $p<0.0001$). The proportion of laparoscopic treatment increased between the two 5-year periods from 80.5% to 91.1% ($p<0.0001$) of all surgical treatments. In the Landspitali University Hospital the increase was from 91.3% to 98.1% ($p<0.001$). Mean hospital stay after open surgery was 3.2 days but 0.9 days after laparoscopic treatment.
Conclusions: There has been a reduction of the incidence of ectopic pregnancy in Iceland comparable to the development in neighbouring countries. Management has changed with increased use of laparoscopic surgery, medical and expectant treatment.

FC0505 Polycystic ovary syndrome, hormonal contraception, and thrombotic stroke. National cohort study

Terese Matthesen (1), Lars H Nielsen (1), Anne Mette Rasmussen (1), Øjvind Lidegaard (1)
(1) Dept. of Gynaecology, Rigshospitalet, University of Copenhagen

Objectives. Women with polycystic ovary syndrome (**PCOS**) have an increased long-term risk of thrombotic stroke (**TS**). Combined hormonal contraception increases the same risk moderately in young women. The aim of this study was to assess the risk of TS in women of reproductive age with PCOS and to explore how use of hormonal contraception and adiposity influences that risk.
Material and methods. In this historical national cohort study all Danish non-pregnant women 15-49 years old, free of previ**o**us thrombotic disease or cancer, were followed from January 2001 through December 2012 in four national registries for a PCOS discharge diagnosis, use of hormonal contraception, and a first ever TS diagnosis. Risk estimates were calculated by Poisson regression and adjusted for age, calendar year, education, use of hormonal contraception, and body mass index.
Results. Within 11,332,675 observation years, 2,029 were recorded with a first time TS, of which 90,038 women years and 25 infarctions were in women with PCOS.
The risk of TS increased 20 fold with increasing age, more than halved with increasing education, and increased 70% (95% CI 1.2-2.3) with increasing body mass index. Women with PCOS had an adjusted 2.2 (1.5-2.2) times increased risk of TS. In a sub-analysis on women with known body mass index, adjustment for body mass index reduced the risk estimate non-significantly with 11%.
Conclusion. Women of fertile age with PCOS have a doubled risk of thrombotic stroke, which is not explained by more adiposity and more users of hormonal contraception in these women.

FC0506 From womb to womb: Prenatal, familial and childhood determinants for repeat teenage pregnancy – A nationwide cohort study from Finland

Suvi Leppälahti (1), Oskari Heikinheimo (1), Mika Gissler (2), Reija Paananen (3), Marko Merikukka (3)
(1) Department of Obstetrics and Gynecology/Kätilöopisto Hospital, Uni Helsinki
(2) THL National Institute for Health and Welfare, Helsinki
(3) THL National Institute for Health and Welfare, Oulu

Objective: In the recent study we investigated the effect of prenatal, familial and childhood socioeconomic and health factors on the risk of repeat teenage pregnancy.
Design: A national register-based cohort study.
Participants: All the girls born in 1987 in Finland. The study group consisted of girls with two or more teenage pregnancies (abortion and/or childbearing) (N=506). The reference group had no pregnancies before the age of 20 years (N=25 791).
Results: Familial socioeconomic factors (parents' short education [higher degree *vs* basic level adj. OR 2.5 (95% CI 1.7-3.7)] and receiving income support [3.3 (2.6-4.1)]), maternal reproductive matters (age at birth of the cohort member <20 years [2.2 (1.6-3.0)], smoking during pregnancy [1.6 (1.3-2.0)], a history of abortions [1.4 (1.2-1.8)]), and a history of maternal psychiatric in-patient care [1.6 (1.1-2.2)] were related to a higher risk of repeat pregnancies. Cohort member's history of being taken into custody [4.0 (3.0-5.2)], conviction of crime [2.9 (1.4-6.0)], psychiatric morbidity [(1.9 (1.6-2.4)] and Chlamydia infection [4.7 (3.7-5.8)] were strong determinants for repeat teenage pregnancy. Somatic health had no effect on the risk and poor perinatal outcomes were found to be protective of repeat teenage pregnancy [0.6 (0.4-0.9)].
Conclusions: Socioeconomic inequality and factors reflecting substantial social challenges during childhood were strong predictors of repeat teenage pregnancy. However, reproductive health and psychiatric morbidity of both the mother and the teenager were also significantly connected to the risk of repeat pregnancies during teenage. Special attention should be paid to young girls in high risk groups.

FC0507 Subtotal versus total abdominal hysterectomy: RCT with long term follow-up

Lea Laird Andersen (1), Lars Mikael Alling Møller (2), Bent Ottesen (3), Helga Margrethe Gimbel (1)
(1) University of Southern Denmark and dept of gynaecology, Nykøbing F. Hospital
(2) Dept. of obstetrics and gynaecology Roskilde Hospital
(3) Juliane Marie centret, Rigshospitalet, Copenhagen University Hospital

Background: In Denmark, approximately 4500 women have their uterus removed for benign reasons each year. The question of whether the cervix should be removed (total hysterectomy: TAH) or not (subtotal hysterectomy: SAH) has been discussed among gynaecologists for decades and long term consequences of the 2 surgeries have not been fully explored.
Aim: To compare long term results of SAH versus TAH performed for benign uterine diseases. Primary outcome: Urinary incontinence. Secondary outcomes: Pelvic organ prolapse, constipation, pain, sexuality, quality of life, complications and cervical problems.
Methods: All women, still alive and living in Denmark, enrolled in the RCT from 1996 to 2000 (n=304) were invited to participate in the long term follow-up by answering the same questionnaire as in previous follow-ups.
Results: 198 women (65%) answered the questionnaire (SAH n= 98, TAH n=100). Mean follow-up time was 14.09 years and mean age at follow-up was 60.1 years. Urinary incontinence was seen more frequently in the SAH group; 32 women (33%) compared to 20 (20%) in the TAH group (OR =2.0, 95%CI: 1.04-3.82, P= 0.034) (Table1). No differences were seen in the secondary outcomes. Urinary incontinence increased over time in both groups; however, more after SAH (figure 1). The overall number of complications in each group was the same; however, the types of complications differed (figure 2).
Discussion: More women suffer from urinary incontinence symptoms after SAH than after TAH 14 years after surgery. If abdominal hysterectomy is indicated, TAH should remain the choice surgery when possible.

Figure 1: Urinary incontinence over time after subtotal and total abdominal hysterectomy

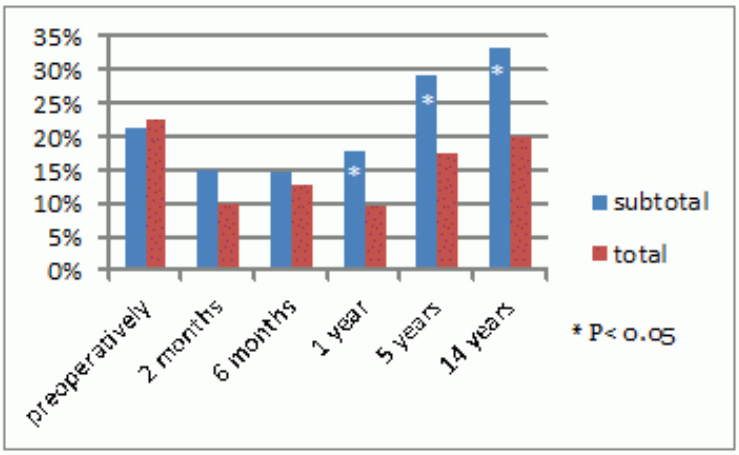


Figure 2: Number of complications up to 14 years after subtotal and total abdominal hysterectomy

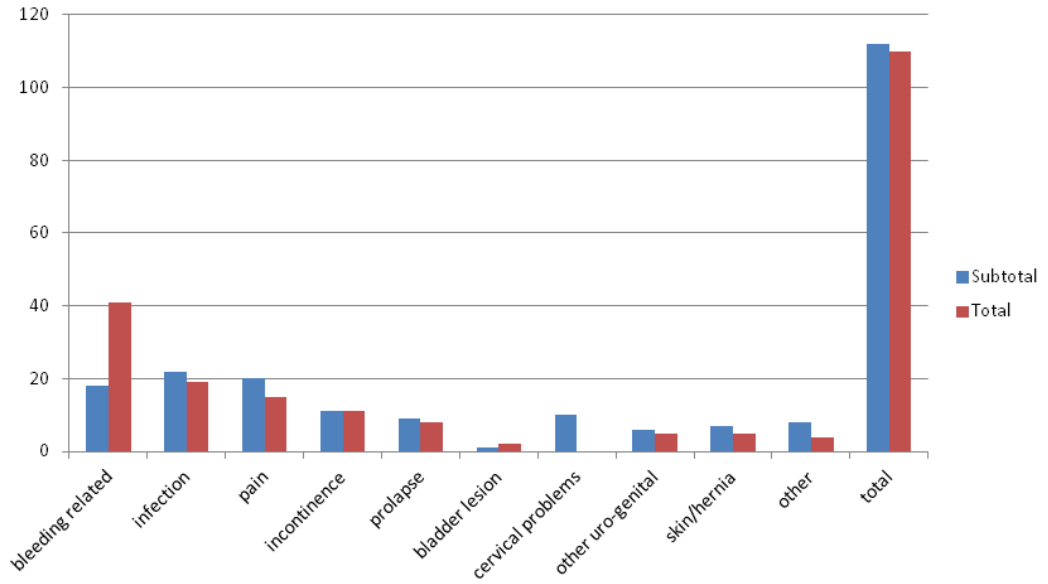


Table 1: Primary and secondary outcome measures at 14 year follow-up, intention-to treat (%) (χ^2 tests except for quality of life which is Wilcoxon's test)

Outcome	SAH (%)	TAH (%)	Odds Ratio	95% CI	P (*=significant)
Urinary incontinence(n=96/100)	32(33.3)	20(20)	2.0	1.04-3.82	0.034*
Constipation (n=97/100)	14(14.4)	7(7)	2.24	0.86-5.81	0.089
Pelvic organ prolapse (n=93/97)	12(12.9)	11(11.3)	1.16	0.48-2.77	0.74
Satisfied with sexual life (n=75/78)	48(64)	53(67.9)	0.84	0.43-1.64	0.61
Pelvic pain (n=96/100)	14(14.6)	10(10)	1.53	0.65-3.65	0.33
Vaginal bleeding (n=97)	0	0			
Quality of life (SF-36) PCS mean [95% CI] MCS mean [95% CI]	 50.4 [48.5-52.4] 54.8 [52.9-56.7]	 51.3 [49.4-53.2] 53.2 [51.4-55.1]			 0.54 0.39

FC0508 Pelvic pain, patient satisfaction and quality of life after total laparoscopic hysterectomy and laparoscopic supracervical hysterectomy, a randomized controlled trial

Espen Berner (1), Erik Qvigstad (1,2), Marit Lieng (1,2)
(1) Department of Gynecology, Oslo University Hospital, Oslo, Norway
(2) Institute of Clinical Medicine, University of Oslo, Oslo, Norway

Objective: To compare cyclic pelvic pain, patient satisfaction and quality of life after total laparoscopic hysterectomy (TLH) and laparoscopic supracervical hysterectomy (LSH), respectively.
Methods: A blinded randomized controlled trial of 62 women with cyclic pelvic pain. The women were randomized to either TLH (n=31) or LSH (n=31). The main outcome measure was reduction of cyclic pelvic pain 12 months after the procedures measured by a visual analogue scale (VAS) 0-10.
Results: The study participants had a mean age of 44.8 (SD 4.9) years. They underwent the allocated treatment in the period February 2011 to November 2012. The mean preoperative cyclic pelvic pain was 6.7 (SD 2.2) measured by VAS 0-10. This pain was equally reduced in both treatment groups 12 months after the procedures, p=0.77. The mean pelvic pain reduction after TLH and LSH was 5.8 (SD 2.6) and 6.0 (SD 2.6), respectively. The mean patient satisfaction 12 months after hysterectomy was 9.2 (SD 1.3) measured by VAS 0-10. There was an improvement in Quality of life (Qol) 12 months after hysterectomy measured by Short Form 36, p<0.01. There were no differences between the two allocated treatment groups in cyclic pelvic pain, patient satisfaction or Qol 12 months after hysterectomy.
Conclusions: The reduction of cyclic pelvic pain 12 months after TLH and LSH appears to be comparable. The study participants in the two allocated treatment groups had a similar improvement in Qol and seemed to be equally satisfied with the treatment 12 months after the procedures.

FC0509 "Sexual assault; A descriptive study of 2500 female victims seen at a Danish centre in a 10-year period".

Mie-Louise Larsen (1), Malene Hilden (1,2), Øjvind Lidegaard (2)
(1) Centre for Victims of Sexual Assault, Rigshospitalet, University of Copenhagen, Denmark
(2) Department of Obstetrics and Gynaecology, Rigshospitalet, University of Copenhagen, Denmark

Objective: To describe victims of sexual assault, the assault circumstances, and risk factors for these events.
Design: Prospective case-only study.
Setting: Centre for Victims of Sexual Assault (CVSA), Rigshospitalet, Copenhagen, Denmark.
Population: 2541 women attending CVSA from 2001-2010.
Methods: All women attending CVSA were asked to fill out a standardised questionnaire. Data underwent descriptive bivariate and logistic regression analysis.
Main outcome measures: Associations between assault characteristics and a) the age of the victim, and b) the relationship between victim and perpetrator.
Results: 75 % of the victims had met their perpetrator before the sexual assault. Women were more likely to report to the police when they were assaulted by a stranger; OR 1.9 (95% CI 1.3-2.6), sustained a physical lesion; OR 1.7 (1.4-2.2) or an ano-genital injury; OR 1.5 (1.1-2.0). Women were less likely to report when they were intoxicated; OR 0.6 (0.5-0.7).
Conclusion: Our results challenge the typical stereotype of a violent attack by a stranger. Young age and drinking alcohol were risk factors for sexual assault, and we need to address this when considering preventive strategies.
Perspective: A current study looking at the victim's use of health care before and after their assault is underway and preliminary results from this will be presented and discussed.

Free Communication 06 - Oncology & mixed

FC0601 High incidence of high-grade cervical neoplasia among HIV-infected women compared to HIV negative women from the same birth region: a population-based cohort study

Christina Carlander (1, 2), Kristina Elfgren (3), Anders Berglund (2), Katarina Westling (1), Veronica S-Johansson (1), Anders Sönnerborg (1), Pär Sparén (4)
(1) Department of Medicine, Karolinska Institutet, Stockholm, Sweden
(2) Centre for Clinical Research Västmanlands County Hospital, Uppsala University, Sweden
(3) Department of Obstetrics and Gynecology, Karolinska University Hospital, Sweden
(4) Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Sweden

Objectives: To assess the incidence of high-grade cervical intraepithelial neoplasia and invasive cervical cancer (CIN 2+), in a cohort of HIV-infected women, compared to HIV-negative women.
Methods: Our cohort consisted of HIV-infected women (n= 1154) identified from the Swedish national HIV register InfCare HIV and HIV-negative women (n= 257 743) identified from the Swedish Population Register, frequency matched on region of birth (as categorized by UNAIDS) and age. Data was collected between 1993 and 2011 by linking our cohort with the Swedish National Quality Register of Cervical Cancer Prevention (NQRCP), collecting all cytological and histological results. Participants were followed from study entry until whichever came first of CIN 2+, emigration, death or 31 December 2011. The cumulative incidence (CuI) and hazard ratio (HR) of CIN 2+ was assessed.
Results: The CuI of CIN 2+ after 18 years of follow up was 20 % for HIV-infected women and 3 % for HIV-negative women. After eight years of follow up HIV-infected women born in Eastern Europe and Asia, Sub-Saharan Africa and Sweden had a CuI of 19%, 13% and 13% respectively. After adjusting for age and region of birth HIV-infected women had a 5 times higher risk of CIN2+ (HR=5,2; 95% CI 4-11) compared to HIV-negative women.
Conclusion: Our results confirm the high incidence of CIN 2+ among HIV-infected women. Early HIV-diagnosis and attendance to cervical screening, with special focus on immigrants, is of crucial importance to minimize the incidence of CIN 2+.

FC0602 A Seven year follow-up of Human Papillomavirus DNA positive and negative minor cytological abnormalities.

Maria Persson (1), K Miriam Elfström (2), Sven-Erik Olsson (3), Joakim Dillner (2), Sonia Andersson (1)
(1) Department of Women's and Children's Health, Division of Obstetrics and Gynecolo
(2) Department of Medical Epidemiology and Biostatistics Karolinska Institutet, Sto
(3) Department of Clinical Sciences, Danderyd Hospital, Karolinska Institutet, Divis

Objectives: To estimate long-term risk of developing cervical intraepithelial neoplasia grade 2 or worse (CIN2+) among women with minor cytological abnormalities in relation to age, HPV-status, and HPV-DNA genotype(s). The results could provide guidance for the management of women with minor cytological abnormalities.

Methods: 314 women with minor cytological abnormalities were followed for an average of 3.8 years. Baseline high-risk HPV (HR-HPV) DNA detection and genotyping by Linear Array was performed as reflex testing of index liquid based cytology (LBC). Women were linked to the Swedish National Quality Register for Cervical Cancer Prevention (NKCx) to identify histologically confirmed CIN2+. The cumulative incidence proportion (CIP) of CIN2+ by baseline characteristics and hazard ratios were estimated to explore differences between index data and association with CIN2+.

Results: A total of 89 women (28.3%) developed CIN2+. HR-HPV positive women, developed significantly more CIN2+ than HR-HPV negative women. The CIP was 53.9% (95% CI: 40.6-68.3) for HPV16/18, 38.5% (95% CI: 30.2-48.2) for other HR-HPV types, and 6.6% (95% CI: 2.3-18.1) for HR-HPV negative women (p=0.0001). The 4-year CIP of CIN2+ among HR-HPV negative ASC-US was 2.2% (95% CI: 0.3-14.5) and among HR-HPV negative LSILs 1.9% (95% CI: 0.3-12.7).

Conclusion: HPV-status had the greatest importance in determining risk for developing pre-cancer. The risk was low among HPV negatives during the first 4.5 years of follow-up, suggesting these women could safely be returned to the ordinary screening program. The highest risk of pre-cancer was observed among women positive for HPV16/18 suggesting need for intensified follow-up.

FC0603 Girls lost to cervical cancer prevention

Bente Braad Sander (1), Miguel Vázquez-Prada Baillet (1), Matejka Rebolj (1), Palle Valentiner-Branth (2), Elsebeth Lynge (1)
(1) Department of Public Health, University of Copenhagen, Øster Farimagsgade 5, Denmark
(2) Department of Epidemiology, Statens Serum Institut, Ørestads. Boulevard 5, Denmark

Background: In Denmark, 75% of women undergo cervical screening, whereas around 80% of eligible girls have received three doses of HPV vaccination. This opens the possibility that some girls will be covered neither by vaccination nor by screening when they get older. We investigated the likelihood of this scenario, assuming that the mother´s screening behaviour is a reasonable proxy for that of her daughter in the future.

Methods: A population-based study was undertaken linking individual-level data from the Danish Hospital Discharge, Health Insurance, Pathology, and Population registers until 31/12/2010. Girls born in 1993-1997, living in Denmark between 20/09/2006 (the date vaccine became available) and 31/12/2010, were linked to mothers living in Denmark between 01/01/1995 and 31/12/2010, N=145,287. We calculated relative risks (RR) of the mother not being screened in the last four years for unvaccinated daughters compared to daughters receiving at least one HPV vaccine dose.
Results: In total, 8% of girls had not received any vaccination, and 35% of their mothers were unscreened. Among the 92% girls receiving at least one vaccine dose, 14% of mothers were unscreened. Hence, the risk of remaining unscreened in the future was significantly higher in unvaccinated than in vaccinated girls, RR=2.45 (95% CI: 2.38-2.52).
Conclusion: Assuming that a mother's screening behavior predicts that of her daughter's, we estimate that about 3% of girls eligible for HPV vaccination will be neither vaccinated against HPV nor screened. The risk of remaining unscreened in the future so appears significantly higher among unvaccinated than among vaccinated girls.

FC0604 Use of hormone therapy after uterine cervical cancer treatment – a Swedish population-based study

Åsa Hallqvist Everhov (1), Tommy Nyberg (1), Karin Bergmark (2), Angelique Flöter Rådestad (3), Angelica Lindén Hirschberg (3), Karin E Smedby (4)
(1) Department of Oncology-Pathology, Karolinska Institutet, Stockholm
(2) Department of Oncology, Sahlgrenska Academy, Gothenburg
(3) Department of Women's and Children's Health, Karolinska Institutet, Stockholm
(4) Unit of Clinical Epidemiology, Department of Medicine, Solna, Karolinska Institu

Objectives: To assess use of hormone therapy (HT) after castrating cervical cancer treatment. Women with untreated premature menopause are at increased risk of osteoporosis and cardiovascular disease.
Methods: From a cohort of 837 women identified in the Swedish Cancer Register, diagnosed with cervical cancer at ages 20 to 45 years 2005-2009, 257 were defined as in need of HT based on the treatment received. Information on cancer treatment (surgery and/or radiotherapy) was obtained through the Swedish Patient Register. Data on dispensings of HT was assembled from the Prescribed Drug Register. Dispensings of HT and dosage during a six-month period 1 to 1.5 year after diagnosis, as well as during follow-up (up to 5 years, or maximum 50 years of age) were assessed overall and by patient and clinical characteristics.
Results: Among women in premature menopause due to bilateral oophorectomy and/or radiotherapy 65% had at least one dispensing of systemic HT during the studied 6-month period, and 44% dispensed 75% or more of recommended dose. The proportion users decreased to 39% at 4.5 to 5 years. Younger women had a higher prevalence of HT use than older women (82% at ages 20-29 compared to 49% at ages 40-45). Results did not vary by histology (squamous cell carcinoma or adenocarcinoma).
Conclusion: Less then half of the studied women undergoing castrating treatment of cervical cancer used adequate doses of systemic HT. This calls for increased awareness among patients and professionals about the long-term health benefits of HT in this group of cancer survivors.

FC0605 Preoperative DNA ploidy assessment in curettage specimens identifies lymph node metastasis in endometrial cancer

Tormund S Njolstad (1), Trovik Jone (1,2), Marna L Kjæreng (3,4), Wnja Kildal (3,4), Helga B Salvesen (1,2), Håvard Danielsen (3,4,5,6)
(1) University of Bergen, Institute of Clinical Science, Bergen-Norway
(2) Dpt. Obstetrics and Gynaecology, Haukeland University Hospital
(3) Institute for Cancer Genetics and Informatics, Oslo university Hospital
(4) Centre for Cancer Biomedicine, University of Oslo
(5) Department of Informatics, University of Oslo
(6) Nuffield Division of Clinical Laboratory Sciences, University of Oxford

Background: Preoperative risk stratification for endometrial cancer patients by biomarker testing in curettage specimens to aid the prediction of lymph node metastasis and tailoring treatment is aspired in clinical practice. DNA ploidy from hysterectomy specimens has been shown to be of prognostic importance. We wanted to investigate if DNA ploidy in curettage specimens could identify patients with lymph node metastasis, aggressive disease and poor outcome.
Methods: 785 endometrial carcinoma patients prospectively included in a multicenter trial (Molecular Markers in Treatment of Endometrial Cancer) were investigated for curettage specimen DNA ploidy in relation to established clinicopathological variables and outcome. 76.5% of patients were subjected to staging lymphadenectomy.
Results: 72.0% of curettage specimens were diploid, while 28.0% were non-diploid (20.6% aneuploid, 6.6% tetraploid and 0.8% polyploid). Non-diploid curettage significantly correlated with aggressive clinicopathological features; high FIGO stage, non-endometrioid histology, high grade, deep myometrial infiltration (all $p<0.008$) and lymph node metastasis (OR 2.45, $p<0.001$ by univariate logistic regression). Furthermore, non-diploidity was associated with shorter 5-year disease-specific survival (74.4%, compared to 88.8% for diploid curettage, $p<0.001$).
Conclusion: Non-diploid status detected in curettage specimen is significantly associated with aggressive clinicopatholocial phenotype, lymph-node metastasis and poor prognosis. The clinical value of preoperative ploidy assessment to improve risk stratification for individualized surgery needs to be further studied.

FC0606 MRI, PET/CT and ultrasound in the preoperative staging of endometrial cancer — A multicenter prospective comparative study

Sofie Leisby Antonsen (1), Lisa Neerup Jensen (2), Ann Tabor (2), Annika Loft (3), Junia Costa (3), Ingelise Qvist (4), Mette Rodi Hansen (5), Rune Fisker (6), Anne Lerberg Nielsen (7), Jon Asmussen (8)
(1) Gynecologic Clinic, Rigshospitalet, Copenhagen, Denmark
(2) Center of Fetal Medicine and Ultrasound, Rigshospitalet, Copenhagen, Denmark
(3) Department of Clinical Physiology, Nuclear Medicine, & PET, Rigshospitalet, Denmark
(4) Department of Ultrasound, Aalborg University Hospital, Aalborg, Denmark
(5) Department of Radiology, Aalborg University Hospital, Aalborg, Denmark
(6) Department of Nuclear medicine, Aalborg University Hospital, Aalborg, Denmark
(7) Department of Nuclear medicine, Odense University Hospital, Odense, Denmark
(8) Department of Radiology, Odense University Hospital, Odense, Denmark

Objectives: The aim of this prospective multicenter study was to evaluate and compare the diagnostic performance of PET/CT, MRI and transvaginal two-dimensional ultrasound (2DUS) in the preoperative assessment of endometrial cancer (EC).
Methods: 318 consecutive women with EC were included when referred to three Danish tertiary gynecological centers for surgical treatment. Preoperatively they were PET/CT-, MRI-, and 2DUS scanned. The imaging results were compared to the final pathological findings. This study was approved by the National Committee on Health Research Ethics.
Results: For predicting myometrial invasion, we found sensitivity, specificity, PPV, NPV, and accuracy for PET/CT to be 93%, 49%, 41%, 95% and 61%, for MRI to be 87%, 57%, 44%, 92%, and 66% and for 2DUS to be 71%, 72%, 51%, 86% and 72%. For predicting cervical invasion, the values were 43%, 94%, 69%, 85% and 83%, respectively, for PET/CT, 33%, 95%, 60%, 85%, and 82%, respectively, for MRI, and 29%, 92%, 48%, 82% and 78% for 2DUS. Finally, for lymph node metastases, the values were 74%, 93%, 59%, 96%, and 91% for PET/CT and 59%, 93%, 40%, 97% and 90% for MRI. When comparing the diagnostic performance we found PET/CT, MRI and 2DUS to be comparable in predicting myometrial invasion. For cervical invasion and lymph node metastases, however, PET/CT was the best.

FC0607 Effects of the MHT and SERMs on progesterone/RANKL signalling in normal and malignant breast tissue of postmenopausal women

Natalja Eigeliene (1), Lauri Kangas (2), Risto Erkkola (3), Pirkko Härkönen (1)
(1) Department of Cell Biology and Anatomy, Institute of Biomedicine, University of Turku, Finland
(2) Hormos Medical Ltd., Turku, Finland
(3) Department of Obstetrics and Gynecology, Turku University Hospital, Turku, Finland

The beneficial effects and risks of menopausal hormone therapy (MHT) are still being discussed. Contradictory results have been obtained from *in vitro* and *in vivo* studies concerning the role of estrogens and, especially progestins, in breast epithelial cell proliferation and in breast carcinogenesis. Medroxypreogesterone acetate (MPA) is still the most frequently used progestin for MHT. Recent studies on the mechanisms of MPA effects on breast epithelium suggest that MPA triggers massive RANKL expression in the mouse mammary gland predisposing the tissue to malignant changes and even onset of development of breast cancer. So far, there is little data available on the RANKL expression in human postmenopausal breast tissues (HBT).

We studied the effects of estrogen, progestins and hormonal drug compounds that are used as MHT or prevention of breast cancer on explant cultures of normal, peri- and tumoral HBTs to evaluate regulation of the progesterone/RANKL pathway by hormonally active compounds.

The normal and malignant HBTs were obtained from postmenopausal women undergoing reduction mammoplasty operations or surgeries due to breast tumors and cultured with or without 17β-estradiol (E_2), MPA and SERMs (ospemifene, raloxifene and tamoxifene) for 7 and 14 days. Further, cultured explants were studied for morphology, expression of markers for proliferation and apoptosis, expression of steroid hormone receptors and RANKL by immunohistochemistry, western blots and qRT-PCR.

Our results suggest that the progesterone/RANKL axis has an important role in the response of HBTs to the crucial compounds of MHT.

FC0608 Objective assessment of surgical competence in gynecological laparoscopy. Validation of two rating scales used for laparoscopic supracervical hysterectomy (LSH)

Jeanne Mette Goderstad (1), Erik Fosse (1,2), Marit Lieng (1,2)
(1) Oslo University Hospital
(2) Institute of Clinical Medicine, Univerity of Oslo

Introduction: Objective assessment tools can be useful in surgical training. We compared the validity of two rating scales (GOALS: Global Operative Assessment of Laparoscopic Skills and CAT-LSH: Competence Assessment Tool of laparoscopic supracervical hysterectomy) for structured assessment of surgical skills when performing a laparoscopic supracervical hysterectomy (LSH).
Population: Gynecologists and gynecological trainees, Department of Gynecology, Oslo University Hospital.
Material and Methods: A pilot study including 10 videotaped laparoscopic supracervical hysterectomies was conducted. Based on the results of the pilot study, we included 37 procedures to achieve a study power of 80 % and a level of significance of 0,05.
Thirty-seven video recordings of a laparoscopic supracervical hysterectomy were collected prospectively, eleven from inexperienced gynecologists, twelve from intermediate experienced and 14 from experts in gynecological surgery. All surgical procedures were performed by the same surgical strategy. The participants were evaluated by CAT-LSH and GOALS by the operating assistant, and two blinded observers evaluated the video-recordings.
Results: There were significant differences between the three groups in both rating scales. The mean CAT-LSH score of inexperienced, intermediate experienced and experts were 36.8, 45.1 and 53.5. The mean GOALS scores in the same groups were 12.4, 17.5 and 19.4, The inter-rater reliability for CAT-LSH and GOALS was 0,74 and 0,72.
Conclusions: CAT-LSH and GOALS appear to be valid and reliable tools for assessment of technical skills during laparoscopic supracervical hysterectomy. These tools may consequently be useful for establishment of levels of surgical competence during training and surgical procedures.

FC0609 Genital chronic Graft-versus-Host Disease – new knowledge of importance for gynecologists.

Eva Smith Knutsson (1), Yvonne Björk (2), Anna-Karin Broman (1), Lotti Helström (3), Anne-Marie Levin Jakobsen (4), Ola Nilsson Wassén (5), Karin Sundfeldt (6), Mats Brune (2)
(1) Dept of Obstetrics and Gynecology, NU Hospital Group, Trollhättan, Sweden
(2) Sect of Hematology and Coagulation, Sahlgrenska Univ. Hosp., Göteborg, Sweden
(3) Rape Victim Centre, Dept of Clinical Science & Education, KI, SöS, Sthlm, Sweden
(4) Dept of Pathology, Norrlands University Hospital, Umeå. Sweden
(5) Dept of Pathology, Sahlgrenska University Hospital, Göteborg. Sweden
(6) Dept of Obstetrics and Gynecology, Sahlgrenska Univ Hosp, Göteborg, Sweden

BACKGROUND. Allogeneic stem cell transplantation (alloSCT) is a curative procedure in leukemia, albeit with late side effects. Chronic Graft-versus-Host Disease (cGvHD) is an unwanted immunological activity caused by donor lymphocytes attacking host mucosal tissues. In a recent population-based cross-sectional study (Biol Bone Marrow Transplant, 2014) on 42 women after alloSCT we found a high prevalence (52%) of genital cGvHD (gcGvHD) with features including 4 total and 5 partial vaginal stenosis, dryness, pain, and dyspareunia. Many were undiagnosed by their regular gynecologists.
AIM. The aim of this prospective study was to identify and treat early signs of genital cGvHD (gcGvHD) to reduce the risk of severe gcGvHD.
METHOD. Forty-five women after alloSCT were invited 2006-2010, and regularly examined by one of two gynecologists (ESK, AKB) until 36 months post-transplant, with structured gynecological anamnesis, examination and diagnosing as in the cross-sectional study. Genital cGvHD was treated locally with immunosuppressants, (klobetasol, tacrolimus) and vaginal dilators. Systemic corticoid steroids were prescribed in collaboration with hematologists.
RESULTS. Median age was 49 (18-66). Of 41 eligible women 32 were followed until 36 months. Cumulative incidence of gcGvHD was 40 % (n=13/32), developed at a median of 16 (2-36) months post-transplant, and 4 patients had a partial stenosis. Suspected signs and symptoms of gcGvHD, but not fulfilling NIH diagnostic criteria, were seen in 9 patients before confirmed diagnosis. Twelve patients had no gcGvHD, 7 had suspected but never confirmed gcGvHD.
CONCLUSION. Genital cGvHD is a common sequel after alloSCT. Gynecologists should be part of the post-transplant care.

Poster exhibition abstracts

152.00 PA001 Incidence of Incisional Hernia after Caesarean Section: a Register-based Cohort Study

Anna Aabakke (1), Lone Krebs (1), Steen Ladelund (2), Niels Jørgen Secher (3,4)
(1) Dept. Obs & Gyn, University of Copenhagen, Holbæk Hospital, Denmark
(2) Clinical Research Centre, University of Copenhagen, Hvidovre Hospital, Denmark
(3) The Juliane Marie Center, Copenhagen University Hospital, Denmark
(4) Dept. Obstetrics and Gynaecology, Aarhus University Hospital, Denmark

Objective: To estimate the incidence of incisional hernias requiring herniotomy after cesarean delivery over a 10 year period.
Methods: This population- and register based cohort study identified all women in Denmark with no history of previous abdominal surgery having a cesarean delivery between 1991 and 2000. The cohort was followed from their first until 10 years after their last cesarean delivery during the inclusion period or until the first of the following events: herniotomy, death, emigration, abdominal surgery or cesarean delivery after the inclusion period. For women with a herniotomy, hospital records from the surgery and previous cesarean deliveries were tracked and manually analyzed to validate the relationship between herniotomy and cesarean delivery. Data was analyzed with a competing risk analysis including each cesarean delivery.
Results: We included 57.564 women who had 68.271 cesarean deliveries. During follow-up, 134 women had a hernia requiring herniotomy. The cumulated incidence of a herniotomy within 10 years after a cesarean delivery was 0.197% (95% CI 0.164 – 0.234 %). The risk of a herniotomy was higher during the first three years after a cesarean delivery with an incidence after 3 years of 0.157% (95% CI 0.127 – 0.187 %).
Conclusions: The overall risk of an incisional hernia requiring herniotomy within 10 years after a cesarean delivery was 2 pr. 1000 deliveries and thus very low.
Keywords:
Cesarean section; Hernia, Ventral; Cicatrix; Incidence;

153.00 PA002 The Effect of Primary Delivery of the Anterior compared to Posterior Shoulder on Perineal Trauma: a Randomized Controlled Trial

Hanne Willer (1), Anna Aabakke (1), Lone Krebs (1)
(1) Dept. Obs and Gyn, University of Copenhagen, Holbæk Hospital, Denmark

Background Approximately 85% of vaginal deliveries are accompanied by perineal trauma. The objective of this trial is to compare the incidence and degree of perineal trauma after primary delivery of the anterior compared to the posterior shoulder during vaginal birth.

Methods/Design This is a single centre randomized controlled trial with computer-generated randomization at a 1:1 allocation ratio. Women planning their first vaginal delivery (n = 650) are randomized to primary delivery of either the anterior or posterior shoulder. The primary outcome is any perineal trauma. Additional outcomes are the perineal injury subtypes, post partum bleeding, umbilical artery pH, APGAR score at 5 minutes, and any neonatal birth trauma. Perineal trauma is assessed by a midwife or doctor blinded to the method of shoulder delivery. All midwives are trained in the two methods of shoulder delivery and in the grading of perineal tears. The trial is being undertaken at a Danish community hospital with 1600 yearly deliveries. Data will be analyzed according to the intention-to-treat principle. Recruitment started in January 2013 and the trial is planned to proceed for 24 months.

Discussion Most delivery assistance techniques are based on tradition and heritage and lack objective evidence. This trial provides an example of how vaginal delivery techniques can be evaluated in a randomized controlled trial. The results of this trial will clarify the role delivery of the shoulders has on perineal trauma and thereby add knowledge about recommended birthing technique.

Trial Registration: ClinicalTrials.gov: NCT01937546

170.00 PA003 Breech delivery in the Nordic countries

Susanne Albrechtsen (1), K Klungsøyr (2), T Bergholt (3), E Løkkegaard (3), R Bjarnadóttir (4), BB Másdóttir (4), A Smarason (5), MC Fagerberg (6), K Källén (7), A Pyykönen (8), M Gissler (9), FEI Skjeldestad (10)
(1) Depart of Obstet and Gynecol, Haukeland University Hospital, Bergen, Norway
(2) Medical Birth Registry of Norway, National Institute of Public Health, Bergen
(3) Clinical Research Unit, Depart of Obstet and Gynecol, Nordsjællands Hospital, Un
(4) The Icelandic Birth Registry, National University Hospital of Iceland, Iceland
(5)The Icelandic Birth Registry, Instit of Health Sci ResUniversity of Akyreyri,Iceland
(6) Department of Obstetrics and Gynecology, Ystad Hospital, Ystad, Sweden
(7) The Swedish National Board on Health and Welfare, Stockholm, Sweden
(8) Helsinki University Central Hospital, Depart of Obstetri and Gynecol, Finland
(9) THL National Institute for Health and Welfare, Information Department, Helsinki, Finland
(10) Women's Health and Perinatology Research Group, Department of Clinical Medicine

Objective: To evaluate trends in mode of breech delivery in the Nordic countries.
Design and Setting: Retrospective population-based register study with information from the medical birth registries in the Nordic countries.
Population: Robson group 6 (R6) comprises nulliparous and group 7 (R7) multiparous women with a breech delivery.
Methods: Cesarean delivery rates were determined overall in R6 and R7, by country and across four 3-year time-periods. Time trends were evaluated by chi-square test for linear trend.
Results:
In the Nordic birth population breech presentation occurred in 109379 (3.3%) births with a variation from 2.7% (Iceland) to 3.8% (Denmark). R6 accounted for 2.0% (from 1.5% (Iceland) to 2.2% (Denmark)) and R7 for 1.3% (from 1.1% (Finland and Sweden) to 1.6% Denmark).
The overall proportion of breech cesarean delivery was 83.7%. The overall proportion varied from 68.3% (Norway), Finland 75.2%, Sweden 92.0%, Denmark 92.2% to 93.6% (Iceland). The proportion of cesarean delivery was stable or slightly increasing throughout the study period except in Finland, where the proportion decreased from 80.7% to 68.3%. The overall proportion of cesarean delivery was higher in R6 (87.0%) than in R7 (78.6%).
The proportion of preterm breech birth (< 37 weeks) was 15.8% in R6 and 19.6% in R7.
Induction of labor in R6 varied from 1.7% (Denmark) to 9.4% (Sweden) and was lower than in R7 (2.2% (Denmark) to 11.3% (Sweden)). Induction increased over time.
Conclusion:
Breech cesarean delivery differ across the Nordic countries. Finland has demonstrated a remarkable reduction in breech cesarean delivery.

280.00 PA004 Fetal heart rate patterns preceding uterine rupture at birth.

Malene Mie Andersen (1), Dorthe Louise Ahrenkiel Thisted (1), Lone Krebs ()
(1) Dept. Obstetrics and Gynecology, University of Copenhagen, Holbæk Hospital, Holbæk, Denmark

Objective
To compare cardiotocographic (CTG) abnormalities recorded during labor in women with prior caesarean delivery (CD) and complete uterine rupture to controls without uterine rupture.
Study design
Case-control study.
Methods:
CTG tracings from 53 women with prior CD and complete uterine rupture during labor and from 48 controls with prior CD and planned vaginal delivery were assessed by 19 independent experts.
Three different experts assessed each tracing. The assessors were blinded to group, outcome and all clinical data. They measured occurrence of different prior defined abnormalities and classified the CTG as normal, intermediate, pathological or pre-terminal according to national guidelines.
Results
CTG tracings from cases with uterine rupture were more frequently classified as pathological (OR 2,39 [95% CI: 1,03-5,58] p=0,041) in the first stage of labor. More cases had periods of tachycardia (OR 2,46 [95% CI: 1,06-5,91] p=0,034). Cases had significantly longer periods with impaired variability (OR 7,15 [95% CI: 1,09-46,62] p=0.039) and a higher frequency of severe variable decelerations (OR 2,81 [95% CI: 1,51-4,11] p<0,001). Signs of hypertonia and increased variability were not correlated to uterine rupture. Induction and duration of labor were not significantly correlated to CTG changes.
Conclusion
Pathological CTG is a strong predictor for uterine rupture during the first stage of labor in women with prior CD. Especially occurrence of tachycardia, impaired variability and severe variable decelerations are strong predictors of forthcoming uterine rupture.

395.00 PA005 Cardiovascular disease among women with former severe preeclampsia – presence and possible risk factors

Ellika Andolf (1), Charlotte Iacobaeus (1), Ida Nord (1)
(1) Dept Clin Sciences Karolinska Institutet, Danderyd Hospital 182 88 Stockh

Introduction: Women with a history of preeclampsia have an increased risk for future cardiovascular disease (CVD). Why only some women are affected by CVD after severe preeclampsia is not known. *Aim:* To examine the presence of CVD among women 8-14 years after severe preeclampsia, and illuminate any differences between the women with present CVD and women without CVD. *Material and methods:* 36 women participated in this pilot study performed at Danderyd Hospital, Stockholm, Sweden. Blood pressure and waist circumference were measured, BMI was calculated and blood samples were taken for analysis of high sensitivity CRP, apoA1, apoB, apoB/apoA1 and HbA1c. Participants filled in a form concerning family history, diseases, tobacco, reproduction, physical activity, sleeping patterns weight change and marital stress. *Results:* Ten women were already affected by CVD and 26 were not. Affected women had significantly higher systolic (p=0.001) and diastolic (p=0.001) blood pressure (in spite of medication), BMI (p=0.022) and waist circumference (p=0.003) as well as higher levels of apoB (p=0.017) and lower levels of apoA1 (p=0.015). No difference was seen in CRP or HbA1c or in marital stress. *Conclusions:* This study confirmed the established link between preeclampsia and an increased risk of CVD. If affected women had constitutional differences when becoming pregnant, preeclampsia of greater severity or a different lifestyle is investigated in a larger and more extensive study.

286.00 PA006 The SF-app: A Smartphone-App for Recording of the Symphysis-Fundal Height, Measured by the Pregnant Woman.

Bjørn Backe (1), Hildegunn Stoum (2), Therese Staven (2), Silje Denstad (2), Siri Bye Johansen (3), Silje Ødelien (3)
(1) Institute for Laboratory Medicine, Children's and Women's Health, University Hospital, Trondheim, Norway
(2) Dept of Obstetrics, St Olav's University Hospital, Trondheim, Norway
(3) Technology Transfer NTNU as, Trondheim, Norway

Symphysis-fundus (SF) measurement is an important part of the antenatal care routines, despite lack of evidence for improved fetal outcome. In Norway and Denmark, Westin's original curve from 1974 is still in use, although this curve was doomed obsolete long ago.

It is documented that self-administered SF measurement provides results similar to midwives' measurements. However, more frequent measurements should then be possible with less intraobserver variation.

A new reference curve for SF height was recently published. The curve is based on data from 42 000 pregnant women in the Gothenburg region, analyzed with non-linear regression. All pregnancies were dated with ultrasound. This curve can be customized according to the woman's height and pre pregnancy weight.

Women in childbearing age are accustomed smart phone users, and pregnancy apps are very popular among pregnant women. This led us to develop an app for recording of self-measured SF height, where the obtained SF curve is compared to an individually customized normal curve.

The app contains an instruction video. From gestational week 24, SF-measurements are recorded in the app. Frequent measurement is encouraged, once a week or more. The app can give a weekly reminder. If the measure is outside the normal area, the woman is informed that the measure is deviating and that she should show the curve to her midwife or doctor at the next visit. The curve can be e-mailed and printed out.

From January 2013, the app (in Norwegian) can be downloaded from GooglePlay or AppStore, and is free.

376.00 PA007 Three-dimensional ultrasound does not improve diagnosis of retained pla-cental tissue compared to two-dimensional ultrasound

Johanna Belachew (1), Ove Axelsson (1,2), Karin Eurenius (1), Ajlana Mulic-Lutvica (1)
(1) Department of Women's and Children's Health, Uppsala University, Uppsala, Sweden
(2) Centre for Clinical Research Sörmland, Uppsala University, Uppsala, Sweden

Objectives: To improve ultrasonic diagnosis of retained placental tissue by measuring the volume of the uterine body and cavity using three-dimensional (3D) ultrasound in women with secondary postpartum haemorrhage. *Design:* Prospective, descriptive. *Setting:* Department of Obstetrics and Gynecology, Uppsala University Hospital, Sweden. *Population:* 25 women who were to undergo surgical curettage due to suspected retained placental tissue. *Methods*: The volume of the uterine body and cavity was measured using the VOCAL imaging program, before surgery. The uterine content was sent for histological examination. The measurements were compared with corresponding volumes from women with uncomplicated postpartum periods. *Main outcome measurements:* Volume of the uterine body and cavity. *Results*: 21 women, had retained placental tissue histologically verified. Six of these had a uterine volume exceeding the largest interquartile volume observed in women with a normal puerperium and 3 exceeded the largest volume observed in the normal puerperium. Twenty of the 21 women with retained placental tissue had a uterine cavity volume exceeding the interquartile volume observed in women with a normal puerperium and 17 exceeded the largest volume observed in the normal puerperium. In all 14 cases examined 28 days or more after delivery the cavity volume exceeded the largest volume observed in the normal puerperium. *Conclusions*: A large cavity volume estimated with 3D ultrasound is strongly supportive of retained placental tissue. However, 3D ultrasound adds little or no diagnostic power compared to 2D ultrasound. Accurate diagnosis of retained placental tissue postpartum are needed to avoid unnecessary and potentially harmful invasive procedures.

223.00 PA008 Recommendations of activity restriction in high-risk pregnancy scenarios: a Danish national survey

Jane Bendix (1), Hanne Kristine Hegaard (2), Thomas Bergholt (1), Jens Langhoff-Roos (2)
(1) Department of Gynecology and Obstetrics, Nordsjaellands Hospital, Hillerod
(2) The Juliane Marie Centre for Women, Children and Reproduction, Rigshospitalet

Aims To describe specific recommendations of activity restriction, place of care, expected beneficial and adverse effects and recommended antithrombotic prophylaxis in nine clinical scenarios.
Methods A national survey. All members of the Danish Society of Obstetrics and Gynaecology and the Danish Association of Midwives were asked to complete a tested, structured questionnaire.
Results We sent 1,815 invitations, the overall response rate was 54%. A majority of clinicians recommended some form of activity restriction in the nine scenarios. The midwives recommended strict or moderate activity restriction more often than obstetricians in five of the nine scenarios, in women with PPROM, preterm labour, cervical ripening, total placenta previa and intra-uterine growth restriction, whereas no differences were found in the remaining scenarios. Compared to the obstetricians, the midwives also reported that they expected the recommendation to be more effective. Most midwives and obstetricians reported that they thought strict activity restriction was associated with severe or moderate adverse effect, and recommended antithrombotic prophylaxis.
Conclusions Danish obstetricians and midwives prescribe activity restriction in most high-risk pregnancies. The degree of activity restriction and the presumed effect vary between clinicians. This may reflect different attitudes and lack of guidelines based on clinical studies of a possible benefit of activity restriction.

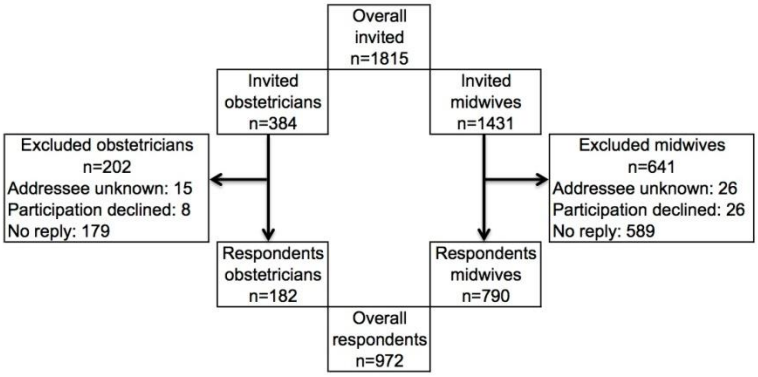


Figure 1. Flow of participants in the survey

Table 2. Recommendations of activity restriction among health care professionals

Clinical scenarios	Obstetricians n=182 (%)				Midwives n=790 (%)				*P* Value
	Strict AR	Moderate AR	Light AR	No AR	Strict AR	Moderate AR	Light AR	No AR	
Threatening preterm delivery									
PPROM	20 (11%)	95 (52%)	53 (29%)	13 (7%)	298 (38%)	382 (48%)	91 (12%)	14 (2%)	***
Preterm labour	68 (37%)	81 (45%)	28 (15%)	4 (2%)	428 (54%)	317 (40%)	35 (4%)	2 (0.3%)	***
Cervical ripening	32 (18%)	103 (57%)	43 (24%)	2 (1%)	242 (31%)	395 (50%)	143 (18%)	2 (0.3%)	**
Short cervix									
Strong social support	28 (15%)	85 (47%)	64 (35%)	3 (2%)	71 (9%)	364 (46%)	331 (42%)	19 (2%)	NS
Poor social support	28 (15%)	96 (53%)	53 (29%)	3 (2%)	95 (12%)	400 (51%)	276 (35%)	13 (2%)	NS
Twin pregnancy	57 (31%)	90 (50%)	33 (18%)	2 (1%)	203 (26%)	428 (54%)	144 (18%)	9 (1%)	NS
Other complications									
False labour	1 (0.5%)	21 (12%)	132 (73%)	27 (15%)	1 (0.1%)	120 (15%)	576 (73%)	90 (11%)	NS
Total placenta praevia	33 (18%)	86 (47%)	54 (30%)	7 (4%)	198 (25%)	440 (56%)	135 (17%)	13 (2%)	***
IUGR	0	21 (12%)	94 (51%)	67 (37%)	6 (1%)	152 (19%)	425 (54%)	201 (25%)	**

P value, Pearson Chi-Square test; **P<0.01; ***P<0.001; NS, no statistical significance

IUGR, intra-uterine growth restriction (foetal weight estimation)

266.00 PA009 Expectant management of PPROM before gestational week 34 - major complications before delivery

Jane Bendix (1), Hanne Kristine Hegaard (2), Thomas Bergholt (1), Jens Langhoff-Roos (2)
(1) Department of Gynecology and Obstetrics, Nordsjaellands Hospital, Hillerod
(2) The Juliane Marie Centre for Women, Children and Reproduction, Rigshospitalet

Background Allocation to hospital and expectant management of preterm prelabour rupture of membranes (PPROM) is controversial. The study aim was to describe course of pregnancies with PPROM prior to 34 gestational weeks managed expectantly in hospital and to identify clinical risk factors of major complications prior to delivery.
Materials and Methods Retrospective cohort study of women with PPROM from 22+0 to 33+6 gestational weeks admitted to a Danish tertiary hospital. All women were prescribed prophylactic antibiotics and bed-rest. Structured data including times of complications, treatment, delivery and outcome were retrieved from the medical records. A structured audit was performed of all cases with major complications that necessitated unplanned delivery.
Results We investigated 234 women with PPROM between week 22 and 33; 52 per cent delivered within 3 days after PPROM. Thirty-six per cent had one or more major complications that necessitated unplanned delivery, and 75 per cent of these complications occurred within 3 days after PPROM. Women with PPROM at 22-23 weeks (HR 3.21 (95% CI (1.00–10.33)) or at 24-27 weeks (HR 4.13 (95% CI (1.38–12.33)) had a significantly increased risk of major complications compared to women with PPROM at 32-33 weeks.
Conclusion Half of the women with PPROM delivered within 3 days and most major complications occurred within three days after PPROM. The women with PPROM at week 22 to 27 had increased risk of major complications. Women with PPROM later than 27 weeks could be considered for outpatient care after 3 days in hospital.

Major complications during PPROM between gestational week 22-33

Figure A, any latency time

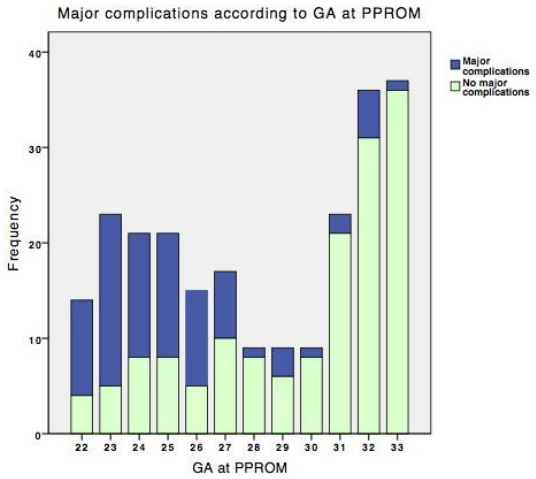


Figure B, latency time >3 days

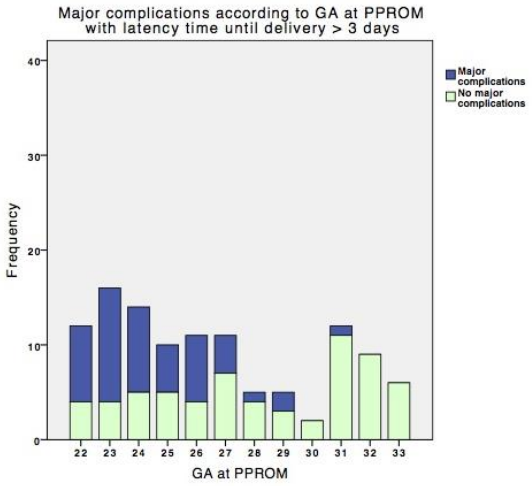


Figure C, latency time > 6 days

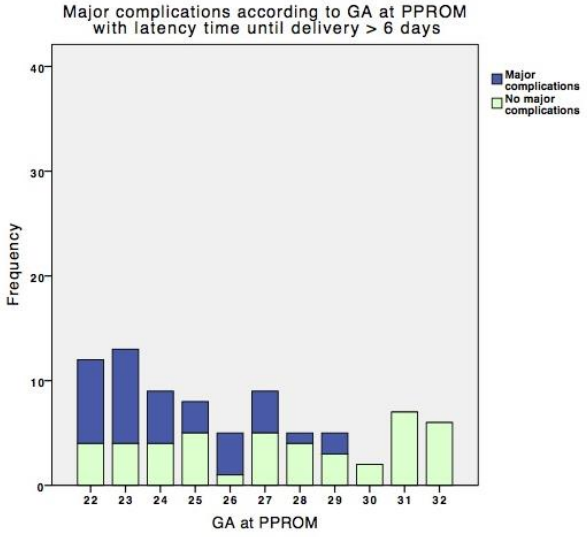


Table 4. Risk factors of major complications in pregnancies with PPROM GA 22-33

	No major complication n (%)	Major complication n (%)	Crude Hazard Ratio (95%CI)	Ajusted Hazard Ratio (95%CI)
Total	150 (64)	84 (36)		
PPROM (Gestational age in weeks)				
22-23	9 (24)	28 (76)	2.89 (1.16-7.22)	3.21 (1.00-10.33)
24-27	31 (42)	43 (58)	3.31 (1.38-7.93)	4.13 (1.38-12.33)
28-31	43 (86)	7 (14)	0.81 (0.29-2.64)	1.16 (0.13-4.29)
32-33	67 (92)	6 (8)	1	1
Maternal age (years)				
≤ 24	12 (63)	7 (37)	0.91 (0.37-2.23)	0.48 (0.13-1.76)
25-29	38 (70)	16 (30)	1	1
30-34	58 (71)	24 (29)	0.94 (0.50-1.77)	0.65 (0.27-1.57)
35+	42 (53)	37 (47)	1.14 (0.63-2.06)	1.55 (0.67-3.59)
Parity				
Nulliparous	100 (74)	36 (26)	0.95 (0.61-1.50)	1.92 (0.98-3.76)
Multiparous	49 (51)	47 (49)	1	1
Pregnancy				
Singleton	105 (61)	68 (39)	1	1
Multiple	44 (73)	16 (27)	1.43 (0.81-2.52)	2.01 (0.88-4.60)
Infertility treatment				
No	117 (63)	69 (37)	1	1
Yes	32 (73)	12 (27)	0.82 (0.44-1.52)	0.65 (0.29-1.44)
Transferral				
No	90 (78)	25 (22)	1	1
Yes	60 (50)	59 (50)	1.59 (0.99-2.55)	1.25 (0.64-2.45)
Vaginal bleeding prior to PPROM				
No	134 (71)	56 (29)	1	1
Yes	16 (36)	28 (64)	1.22 (0.77-1.94)	1.80 (0.87-3.72)
Women's need of assessment				
None	93 (71)	38 (29)	1	1
1 – 2	32 (64)	18 (36)	0.69 (0.39-1.22)	0.65 (0.28-1.49)
3 – 4	11 (39)	17 (61)	0.97 (0.54-1.74)	1.61 (0.64-4.04)
≥ 5	7 (47)	8 (53)	0.55 (0.25-1.22)	0.74 (0.26-2.10)
Supplemental medical treatment				
None	131 (68)	63 (32)	1	1
1-3	12 (40)	18 (60)	0.77 (0.45-1.32)	0.57 (0.25-1.28)
Smoking status				
Non-smokers	128 (68)	59 (32)	1	1
Smokers	19 (53)	17 (47)	1.76 (1.01-3.05)	1.80 (0.81-3.98)
Partner status				
Cohabitant	116 (66)	59 (34)	1	1
Single status	13 (57)	10 (43)	1.34 (0.68-2.62)	1.37 (0.53-3.57)
Body Mass Index kg/m2, *				
< 18.5	10 (67)	5 (33)	2.17 (0.84-5.57)	2.25 (0.55-9.11)
18.5-24.9	101 (73)	37 (27)	1	1
25-29.9	24 (45)	29 (55)	1.60 (0.98-2.61)	1.29 (0.68-2.44)
30+	10 (56)	8 (44)	1.65 (0.77-3.54)	0.79 (0.27-2.27)

Totals may vary as data were missing for some categories.

Ajusted OR, ajusted for GA at PPROM, age, parity, pregnancy, infertility treatment, transferral, BMI, smoking and partner status

109.00 PA010 Prediction models in women with intended vaginal delivery

Thomas Bergholt (1), Bent Kristensen (1), Ellen Løkkegaard (1)
(1) Nordsjællands Hospital, University of Copenhagen

Introduction: Some women ask for specific information on risk of Caesarean Section during labour in order to plan their optimal mode of delivery.
Objectives: To develop, validate and present predictions models of individual risk of Caesarean Section for women with a single baby in cephalic presentation at term intended for vaginal delivery.
Methodology: At the Department of Obstetrics and Gynaecology at Nordsjælland's Hospital, University of Copenhagen, 2,583 women were in spontaneous or induced labour with a single cephalic baby at more than 37 full weeks of gestation in 2010. Multiple logistic regression analyses were performed and a Pregnancy model including only maternal characteristics and previous mode of delivery, and a Labour model including all Pregnancy model variables as well as pregnancy and labour variables were developed.
Results: Maternal age, height and pre-pregnancy body mass index and previous history of delivery were all significant predictors of Caesarean Section in the Pregnancy model. They were also significant predictors of Caesarean Section in the Labour model together with medical induction, fever during labour, artificial rupture of membranes, oxytocin augmentation, epidural and foetal scalp blood sampling in labour. Nomograms for clinical use with the included predictor variables were created for both models.
Conclusions: Prediction models can provide good individual risk assessment of a woman's probability of Caesarean Section in labour at consultation early in pregnancy or during labour.

356.00 PA011 Prophylactic Tranexamic Acid in Cesarean Section: A Systematic Review and Meta-analysis

Märta Fink Topsøe (1), Annette Settnes (1), Thomas Bergholt (1)
(1) Nordsjællands Hospital, University of Copenhagen

Introduction: Tranexamic Acid is an anti-fibrinolytic agent used in women to reduce menstrual blood loss and to control heavy bleeding in relation to pregnancy.
Objectives: To evaluate if preventive administration of Tranexamic Acid could reduce operative bleeding in relation to operative delivery by Cesarean Delivery.
Methodology: PubMed, Embase, The Cochrane Library and Web of Science were searched using 4 different terms for Cesarean Section in combination with Tranexamic Acid from January 1980 until January 2014. Titles and abstracts were initially screened, and potentially eligible, randomised controlled human trials were appraised by two independent reviewers. Five studies were included in the final analyses.
Results: In a meta-analysis of 1.987 women Tranexamic Acid significantly reduced the total mean blood loss related to Cesarean Section with 184 ml (95% CI: 198 – 170 ml) compared to placebo. It revealed a high degree of heterogeneity among the studies. Four women had diagnosed deep venous thromboses after surgery, two women in each group, OR = 1.0 (95% CI: 0.1 – 7.0). Nausea and vomiting was seen in 14% of women treated with Tranexamic Acid compared to 0.4% in the placebo group.

Conclusions: Per-operative preventive use of Tranexamic Acid significantly reduced operative bleeding in women undergoing Cesarean Section. A high degree of heterogeneity may reflect information bias or differences in populations, surgical technique or measurement of blood loss. Additional data on safety seems appropriate before prophylactic use of Tranexamic Acid in Cesarean Section is recommended.

83.00 PA012 Oxytocin and dystocia as risk factors for adverse birth outcomes: A cohort of low-risk nulliparous women

Stine Bernitz (1), Pål Øian (2), Rune Rolland (3), Leiv Sandvik (4), Ellen Blix (5)
(1) Østfold Hospital Trust, Norway
(2) The University Hospital of North Norway, and the University of Tromsø, Norway
(3) Vestre Viken Hospital Trust, Norway
(4) Oslo University Hospital, Norway
(5) The University Hospital of North Norway, and the University of Tromsø, Norway

Objectives Augmented and not augmented women without dystocia were compared to investigate associations between oxytocin and adverse birth outcomes. Augmented women with and without dystocia were compared, to investigate associations between dystocia and adverse birth outcomes. **Design** A cohort of low-risk nulliparous women.
Setting The Department of Obstetrics and Gynaecology, Østfold Hospital Trust, Norway.
Participants The study population consists of 747 well defined low-risk women.
Measurements Incidence of oxytocin augmentation, and associations between dystocia and augmentation, and mode of delivery, transfer of newborns to the intensive care unit, episiotomy and postpartum haemorrhage.
Findings Of all participants 327 (43.8 %) were augmented with oxytocin of which 139 (42.5 %) did not fulfil the criteria for dystocia. Analyses adjusted for possible confounders found that women without dystocia had an increased risk of instrumental vaginal birth (OR 3.73, CI 1.93-7.21) and episiotomy (OR 2.47, CI 1.38-4.39) if augmented with oxytocin. Augmented women had longer active phase if vaginally delivered and longer labours if delivered by caesarean section if having dystocia. Among women without dystocia, those augmented had higher body mass index, gave birth to heavier babies, had longer labours if vaginally delivered and had epidural analgesia more often compared to women not augmented.
Key conclusion In low-risk nulliparous without dystocia, we found an association between the use of oxytocin and an increased risk of instrumental vaginal birth and episiotomy.
Implications for practice Careful attention should be paid to criteria for labour progression and guidelines for oxytocin augmentation to avoid unnecessary use.

147.00 PA013 Hormonal contraception and pelvic girdle pain during pregnancy: a population study

Elisabeth K. Bjelland (1,2), Per Kristiansson (3), Hedvig Nordeng (4,1), Siri Vangen (5,6), Malin Eberhard-Gran (1,2)
(1) Division of Mental Health, Norwegian Institute of Public Health, Oslo, Norway
(2) Health Services Research Centre, Akershus University Hospital, Lørenskog, Norway
(3) Department of Public Health and Caring Sciences, Uppsala University,Sweden
(4) School of Pharmacy, University of Oslo, Oslo, Norway
(5)Norwegian Resource Center for Women's Health, Oslo
(6) University Hospital, Norway Division of Epidemiology, Norwegian Institute of Public Health, Oslo, Norway

Background Pelvic girdle pain severely affects many women during pregnancy. Smaller studies have suggested that hormonal contraceptive use is involved in the underlying mechanisms, but evidence is inconclusive.
Purpose To study the association of pre-pregnancy hormonal contraception use with the development of pelvic girdle pain during pregnancy.
Material and methods A population study of 91,721 pregnancies included in the Norwegian Mother and Child Cohort Study (1999-2008). Data were obtained by two self-administered questionnaires in pregnancy weeks 17 and 30. The outcome in pregnancy week 30 was pelvic girdle pain, defined as pain over the pubic symphysis and over both sacroiliac joints.
Results After adjustment for other study factors, the use of a progestin intrauterine device was the only factor based on the preceding year associated with pelvic girdle pain (adjusted odd ratio 1.20; 95% CI: 1.11-1.31). Long lifetime exposure to progestin-only contraceptive pills was also associated with pelvic girdle pain (adjusted odds ratio 1.49; 95% CI: 1.01-2.20).
Conclusions In contrast to combined oral contraceptive pills, long lifetime exposure to progestin-only contraceptive pills and the use of a progestin intrauterine device during the final year before pregnancy were associated with pelvic girdle pain.
Implications The results suggest that combined oral contraceptives can be used without fear of developing pelvic girdle pain during pregnancy. However, the influence of progestin intrauterine devices and long-term exposure to progestin-only contraceptive pills requires further study.

342.00 PA014 Discontinuation of oxytocin infusion decreases labour complications

Pinar Bor (1), Susanne Ledertoug (1), Inger Stornes (1)
(1) Department of Obstetrics and Gynecology, Regional Hospital of Randers

Background: Oxytocin is one of the most widely used medications in obstetrics to induce and augment labour. It is considered a "high alert medication" However, it is still unclear whether oxytocin should be continued once active labour is achieved. Thus, in the present study we investigate the effects of discontinuation of oxytocin infusion on labour outcomes after the active stage of labour is established.

Method: This was a prospective randomised study involving labouring women who underwent either labour induction or augmentation. Patients were randomised using a computer generated randomisation to the **control group**: infusion of oxytocin is continued until delivery and the **intervention group**: infusion of oxytocin is discontinued when cervical dilatation reached ≥5 cm.

Results: Two hundred patients were included into the study and randomised to the intervention group (n=100) and control group (n=100). Fewer caesarean deliveries (15%) in the intervention group were observed compared to the control group (22%). However, this difference was not statistically significant.
The rates of uterine hyperstimulation, fetal heart rate abnormality and postpartum hemorrhage were significantly higher when oxytocin was continued until delivery versus discontinued. Duration of the active phase of labour was approximately one hour longer in the intervention group, which was statistically significant.

Conclusion: Our study shows that continuation of oxytocin infusion in the active phase of labour seems likely to increase caesarean delivery and makes labour more complicated.

285.00 PA015 Preventing neonatal hypothermia after cesarean section reduces the risk of admission.

Lise Brogaard (1,2), Kristina Bjerre Hansen (1), Birgitte Lindved (1), Steffen Sommer (1), Julie Glavind (2)
(1) Dept. Obstetrics and Gynaecology, Horsens Regional Hospital. Denmark
(2) Dept. Obstetrics and Gynaecology, Aarhus University Hospital. Denmark

Aim:
To determine whether preventing neonatal hypothermia reduces admissions to the neonatal unit in infants delivered by elective caesarean section (CS).
Design:
Retrospective cohort study.
Methods:
We included healthy term neonates delivered by elective CS at a regional Danish hospital from 2009---2011. In the Nirst year of the study period, neonates were swaddled in a warm blanket after delivery (usual care group), whereas during the second year, neonates were placed either in an incubator or directly on the mother's chest in skin---to---skin contact (prevention group). We excluded neonates with pH < 7.09 or base excess (BE) < ---9. The primary outcome was neonatal admission, which was individually determined by an on---call neonatologist, as no neonatal unit existed at the delivery facility. Data for the study were collected by chart review. Comparative analysis was conducted using a Fisher´s exact test.
Results:
A total of 258 neonates were delivered in the project period; 142 in the usual care group and 116 in the prevention group. The groups were similar in terms of gestational age, maternal age, smoking status, and BMI. The number of infants admitted to the neonatal unit was significantly reduced from 8/142 neonates (5.6%) in the usual care group to 0/116 neonates in the prevention group (p = 0.009). There were no significant differences in pH and Apgar scores between the two groups.
Conclusion:
Preventing neonatal hypothermia may reduce unnecessary admissions to the neonatal unit.

343.00 PA016 Vaginal birth for fetus in breech presentation is associated with adverse outcome compared to cesarean birth in Dar-es-Saalam, Tanzania.

Catrin Claeson (1), Lone Krebs (2), Agneta Skoog Svanberg (3), Hussein Kidanto (4), Ulf Högberg (3)
(1) Copenhagen University, Copenhagen, Denmark
(2) Holbæk Hospital, Department of Gynækology and Obstetrics, Holbæk, Denmark
(3) Department of Women's and Children's Health, Uppsala University, Uppsala, Sweden
(4) Department of Obst and Gyn, Muhimbili National Hospital, Dar es Salaam, Tanzania

Aim: The aim was to analyze fetal and child outcome of breech presentation, by mode of delivery, in a low-income setting.
Setting: Muhimbili National Hospital (MNH), Dar-es-Saalam, Tanzania.
Design: Cross-sectional.
Method: Subjects were drawn from a clinical database 1999-2011. Inclusion criteria were breech presentation, birth weight ≥ 2500 g, single pregnancy, and fetal heart sound at admission. Stillbirth was defined as death during labour. Early neonatal death was defined as recorded neonatal death at discharge. Asphyxia was defined as Apgar score <4 at 1 minute, and Apgar score <4 at 5 minutes. Fetal and child outcome in the selected cases were compared by mode of delivery and analyzed by Chi2-testing (p-value < 0.05)
Results: In all 2765 (1,8%) had breech birth, while 1729 met the inclusion criteria. In our selection, the overall stillbirth rate was 1,7% and neonatal death rate was 4,3%. Among the selected cases, 53,4% delivered vaginally. Vaginal breech birth compared to cesarean birth resulted in stillbirth, 2,2% and 1,2%, neonatal death, 6,7% and 1,5%, Apgar <4[1] 13,8% and 5,0 % and Apgar <4[5], 7.6 % and 2.4 %. All differences were statistically significant.
Conclusion: Vaginal breech birth compared to cesarean birth in this setting is associated with adverse fetal and child outcome.

177.00 PA017 Nordic Obstetric Surveillance System (NOSS) Incidences of severe maternal morbidity ub the Nordic countries.

Lotte Berdiin Colmorn (1), Kathrine Birch Petersen (1), Maija Jakobsson (2), Anna-Maija Tapper (2), Mika Gissler (0), Pelle Lindqvist (5), Inga Bjarnasdóttir (6), Karin Källen (7), Kari Klungsøyr (8), Per Bøhrdahl (9) Lone Krebs (10), Jens Langhoff-Roos (1)
(1) Department of Gynecology and Obstetrics, Rigshopsitalet, Copenhagen, Denmark
(2) Department of Gynecology and Obstetrics, University Hospital, Helsinki, Finland
(3) THL, National Institute for Health and Welfare, Helsinki, Finland
(4) Nordic School of Public Health, Gothenburg, Sweden
(5)Karolinska University Hospital, Huddinge, Sweden
(6) Department of Gyn and Obs´t, Landspitali University Hospital, Reykjavik, Iceland
(7) Department of Gyn and Obst, Clinical Sciences Lund, Lund Uni, Sweden
(8) The Norwegian Institute of Public Health, Bergen, Norway
(9) Haukeland University Hospital, Bergen, Norway
(10) Department of Gynecology and Obstetrics, Holbæk University Hospital, Denmark

Objective: To assess rates of severe obstetric complications in all Nordic countries, and analyse the impact of previous cesarean section.
Design: Prospective data collection based on medical records and the national birth registers in the Nordic countries.
Setting: The Nordic Obstetric Surveillance Study (NOSS), was founded in 2009 as a joint initiative between the NFOG and NOMBIR (The Nordic Medical Birth Registries).
Sample and Methods: Cases of uterine rupture, placenta accreta/percreta, peripartum hysterectomy and severe post partum haemorrhage were reported from the obstetric units and validated by the medical birth registries during a period of minimum two years from 1.April 2009 to 31.December 2012.
Main outcome measures: Rates of reported severe obstetric complications in the Nordic countries.
Results: Severe obstetric complications were reported in 1162 of 609.117 deliveries (22 per 10.000). The most common complication was severe haemorrhage (transfusion more than 5 units) with an incidence of 9.7 per 10.000, followed by complete uterine rupture 5.5 per 10.000, placenta accreta/percreta 4.6 per 10.000, and peripartum hysterectomy with 2.2 per 10.000. Fourteen (14) % had two co-existing complications and 4% had three co-existing complications. The association with previous cesarean section, maternal death and other risk factors will be analyzed and presented at the congress.
Conclusion: Severe obstetric complications are rare but important because of the risk for the mother. They should be considered when we discuss preferred mode of delivery – induction of labor and cesarean section. This Nordic initiative provides the foundation for audit and common educational activities.

328.00 PA018 Use of potentially toxic products among pregnant women in Sweden

Elisabeth Darj (1,2), Beth Maina Ahlberg (1), Jecinta Okumu (1)
(1) Uppsala University
(2) Norweigan University of Science and Technology

Objective: Skinbleaching is a common practice around the world. Bleaching products often contain toxic ingredients with harmful adverse effects. This study aimed to investigate the use of skinbleching products among pregnant women in Sweden.
Design: A desciptive cross-sectional quantitative study.
Setting: At a university hospital, all pregnant women referred for a routine ultrasound examination were subsequently asked to participate in the study.
Population: 857 women in pregnancy week 16-18 received a questionnaire at the reception desk on arrival to the hospital.
Methods: A short questionnaire with closed and open ended questions was used during three months.
Main outcome measures: The number of women using skinbleaching products.
Results: 455 women responded to the questionnaires (53 %), out of which 85,3% were Swedish, 13,4% of immigrant backgrounds, and 1,3% did not answer the question of origin. Of the responding pregant women 2.9 % used skinbleaching products. Significantly more immigrant women, compared to Swedish born women, used different products ($p<0.001$).
Conclusion: The use of products sold for skinbleaching purpose is established among pregnant women in Sweden. We suggest more studies to be carried out, to fully understand the phenomenon, the medical implications and the chemical compositions. Though the sale of the products is illegal, they are however easily available.

84.00 PA019 Velamentous and marginal cord insertion: third stage of labor risks, a population-based study of 738,443 singleton births

Cathrine Ebbing (1,2), Torvid Kiserud (2), Susanne Albrechtsen (1), Synnøve Johnsen (1), Svein Rasmussen (2)
(1) Department of Obstetrics and Gynecology, Haukeland University Hospital, Norway
(2) Department of Clinical Science, Univeristy of Bergen, Norway

Objectives To determine the effect of velamentous and marginal cord insertion on risk of complication in the 3rd stage of labor.
Methods A population-based registry study using data from the Medical Birth Registry of Norway including all singleton births (gestational age >16 weeks and <45 weeks) during the period 1999-2011 a total of 738,443 singletons. Descriptive statistics and Odds ratios (OR) for complications in the third stage of labor: manual removal of the placenta, postpartum curettage and hemorrhage were estimated by logistic regressions adjusting for confounders.
Results Anomalous cord insertion was associated with increased risk of complications in the third stage of labor, the risk being higher for velamentous than marginal insertion. The risks persisted after adjusting for possible confounding factors. Velamentous cord insertion carried a 5.6% risk for manual removal of the placenta in term vaginal delivery compared with 1.1% in non-velamentous cord insertion, i.e. OR=5.29 (95%CI 4.82-5.81), and the risk for curettage OR=3.32 (95%CI 2.91-3.78), and postpartum hemorrhage (>1500 mL) OR=1.94 (95%CI 1.72-2.19).
Conclusion Velamentous and marginal cord insertions are associated with significantly increased risk for complications in the third stage of labor. Cord insertion site may be identified prenatally and taken into account in the obstetric management to prepare for timely intervention.

117.00 PA020 Velamentous and marginal cord insertion: association with cord length, cord knots and pre-labor rupture of membranes in 738,443 births

Cathrine Ebbing (1,2), Torvid Kiserud (2), Synnøve Johnsen (1), Susanne Albrechtsen (1,2), Svein Rasmussen (2)
(1) Department of Obstetrics and Gynecology, Haukeland University Hospital, Norway
(2) Department of Clinical Science, University of Bergen, Norway

Objectives To determine the effect of velamentous and marginal cord insertion on pre-labor rupture of the membranes (PROM) and umbilical cord characteristics.
Methods A population-based study using data from the Medical Birth Registry of Norway including all singleton births (gestational age >16 weeks and <45 weeks) during the period 1999-2011 (n=738,443 singletons). Descriptive statistics and Odds ratios (OR) for PROM (>24 hours before birth), short umbilical cord length (<10th centile) and the risk of cord knots in these pregnancies were estimated by logistic regressions adjusting for confounders. Births before gestational week 37 were defined as preterm.
Results Anomalous cord insertion was associated with increased risk of PROM, adjusted for maternal age and parity. The risk of preterm PROM was OR 2.63 (95%CI 2.30-3.00) in births with velamentous cord insertion, and less in marginal insertion, OR 1.24 (95%CI 1.13-1.37). There was an increased risk of short umbilical cord (<10th centile), and the risk estimates were unaltered when stratified by term/preterm birth, and including maternal age, parity and serious malformations in the model (OR=1.40 (95%CI: 1.31-1.49)). Anomalous cord insertion was associated with reduced risk of a true umbilical cord knot at term OR= 0.64 (95%CI 0.52-.0.79) even if short umbilical cord (<10th centile) was included in the model.
Conclusion Our results suggest that velamentous and marginal cord insertions are associated with altered function of the membranes as seen by the doubled risk of preterm PROM. The entity also carries an increased probability of a short umbilical cord and reduced risk for knots at term. The information may open the possibility to study new pathogenesis and mechanisms of PROM.

326.00 PA021 Multitransfusion in relation to postpartum haemorrhage

Hellen Edwards (1), Anne Wikkelsø (2), Arash Afshari (3), Jens Langhoff-Roos (4), Ann Møller (2), Jakob Stensballe (5,3)
(1) Department of Obstetrics and Gynecology, Copenhagen University Hospital Herlev,
(2) Department of Anaesthesiology, Copenhagen University Hospital Herlev, Denmark
(3) Department of Anaesthesiology, Rigshospitalet, Copenhagen, Denmark
(4) Department of Obstetrics, Rigshospitalet, Copenhagen, Denmark
(5) Capital Region Blood Bank, Rigshospitalet, Copenhagen, Denmark

PPH is associated with increased maternal morbidity and mortality. A haemostatic balanced transfusion therapy with a high ratio of fresh frozen plasma (FFP) to red blood cells (RBC) is associated with reduced mortality in non-obstetrical massive transfusion (MT), and could also have implications for massive PPH.
Our aim is to investigate the effect of a balanced transfusion on the incidence of postpartum hysterectomy and to describe the types of surgical procedures leading to bleeding control.
We combined three national databases assessing all Danish births from 2001 to 2009. We included parturients with PPH requiring MT, defined by the transfusion of ≥10 RBC in 24 hours. Balanced MT was defined as: ((No. of RBC-6)/ No of FFP) ≤ 1.
Massive PPH requiring MT complicated 250 of 486,431 deliveries (0.05%). A total of 116 (54%) parturients received a haemostatic balanced MT. We found a reduced rate of hysterectomy in the group receiving a balanced MT (46%) compared to those not receiving a balanced MT (63%), (p=0.01). Table 1 lists the most frequent procedures performed and their rate of surgical control of the bleeding. Blood loss was significantly lower in the balanced MT group compared to the non-balanced MT group (p=0.01).
Balanced transfusion therapy is associated with a reduced incidence of postpartum hysterectomy and less bleeding in cases of massive PPH. The success rate of hysterectomy was highly influenced by which procedures were performed prior to the hysterectomy and the aetiology of the PPH.

Table 1. Procedures performed up to haemostasis and their haemostatic rate.

Procedure	Rate of procedure N (%)	Rate of bleeding control N (%)
Hysterectomy	120 (53%)	86 (72%)
Arterial ligation	52 (23%)	23 (44%)
B-lynch suture	68 (30%)	25 (37%)
Bakri Balloon	41 (18%)	7 (17%)
Intra-abdominal tamponade	10 (4%)	6 (60%)
Uterine tamponade	23 (10%)	3 (13%)

288.00 PA022 Simulation training and less need for blood transfusions after birth - any connection?

Signe Egenberg (1), Pål Øian (2), Edvin Bru (3), Michael Sautter (4), Torbjørn Eggebø (1,5)
(1) Department of Obstetrics and Gynecology, Stavanger University Hospital, Norway
(2) Department of Obstetrics and Gynecology, University Hospital of North Norway
(3) Norw Centre for Learn Environ and Behav Research in Educ, Univ of Stavanger
(4) Laerdal Medical, Tanke Svilandsgt. 30, 4002 Stavanger, Norway
(5) National Center for Fetal Medicine, Trondheim University Hospital, Norway

Objective: To investigate whether simulation training on postpartum hemorrhage (PPH) can reduce the need for blood transfusions after birth
Methods: In 2010 Stavanger University Hospital (SUS) implemented a mandatory training course for all midwives, doctors and assistants in the maternity wards. The simulation training comprised of discussions on local procedures for management of PPH using scenario with role-play and debrief in interprofessional teams. A fellow midwife utilizing the strap-on birthing simulator "MamaNatalie" featuring excessive blood loss, acted as a laboring woman appealing to the team to assist her. Debriefing by good judgment, the facilitator challenged the group on their experiences, frames of understanding and actions, aiming at strengthened self-efficacy and adherence to local procedures.
We collected data from the birth registry at SUS and Department of Immunology and Transfusion Medicine. We retrospectively identified 534 mothers giving birth in 2009 (before training) and 546 mothers in 2011 (after training) with estimated blood loss >500ml.

Results: In total 11.1% of the mothers had estimated blood loss >500 ml in 2009 vs. 11.2% in 2011. However, we observed a significant reduction of red cell blood transfusions from 20.8 to 12.3% ($p<0.01$), in uterine embolization (10 vs.1 cases) and curettage (59 vs.33 cases). Maternal characteristics and interventions like epidural analgesia and operative deliveries remained unchanged, as well as mean Hb-level at discharge (9.6 vs 9.7 g/dl; $p=0.74$). Oxytocin augmentation was significantly lower in 2011 (29% vs.21%).
Conclusion: Interprofessional simulation training in managing PPH may be associated with decreased need for blood transfusion after birth.

26.00 PA023 Luteoma of pregnancy: a case report an review of literature

Irina Eide (1), Angela Witt (2)
(1) Bodø gynecological clinic, Sjøgata 1, N8006 Bodø, Norway
(2) Curato Radiological Institute, Tollbugata 10, N8006 Bodø, Norway

Pregnancy luteoma (PL) is a rare benign ovarial neoplasm which can present a diagnostic challenge as it mimics a malignant tumour. Approximately 200 cases have been reported in the literature since 1963. PL develops during pregnancy and regresses postpartum. Usually asymptomatic, PL may present with virilisation or symptoms due to torsion. Association with polycystic ovarian syndrome (PCOS) has been reported. We present an incidentally discovered PL in a 22-year-old primigravida. Unilateral ovarial mass was ultrasographically detected in early pregnancy during PCOS follow up consultation and before gestational sac could be identified. Due to suspicious for malignancy, surgery to extract this mass was recommended, but the patient did not want it. Spontaneous tumour regression after uncomplicated vaginal delivery was observed. As far as we know, this is the first PL case report when tumour mass was discovered before gestational sac could be identified.
Luteomas image features in ultrasound, computed tomography and magnetic resonance as well as strategies to avoid unnecessary surgery will be discussed.

272.00 PA024 Pre-pregnancy Body Mass Index and duration of labour

Karen Louise Ellekjaer (1), Thomas Bergholt (1), Ellen Loekkegaard (1)
(1) Nordsjællands Hospital, University of Copenhagen

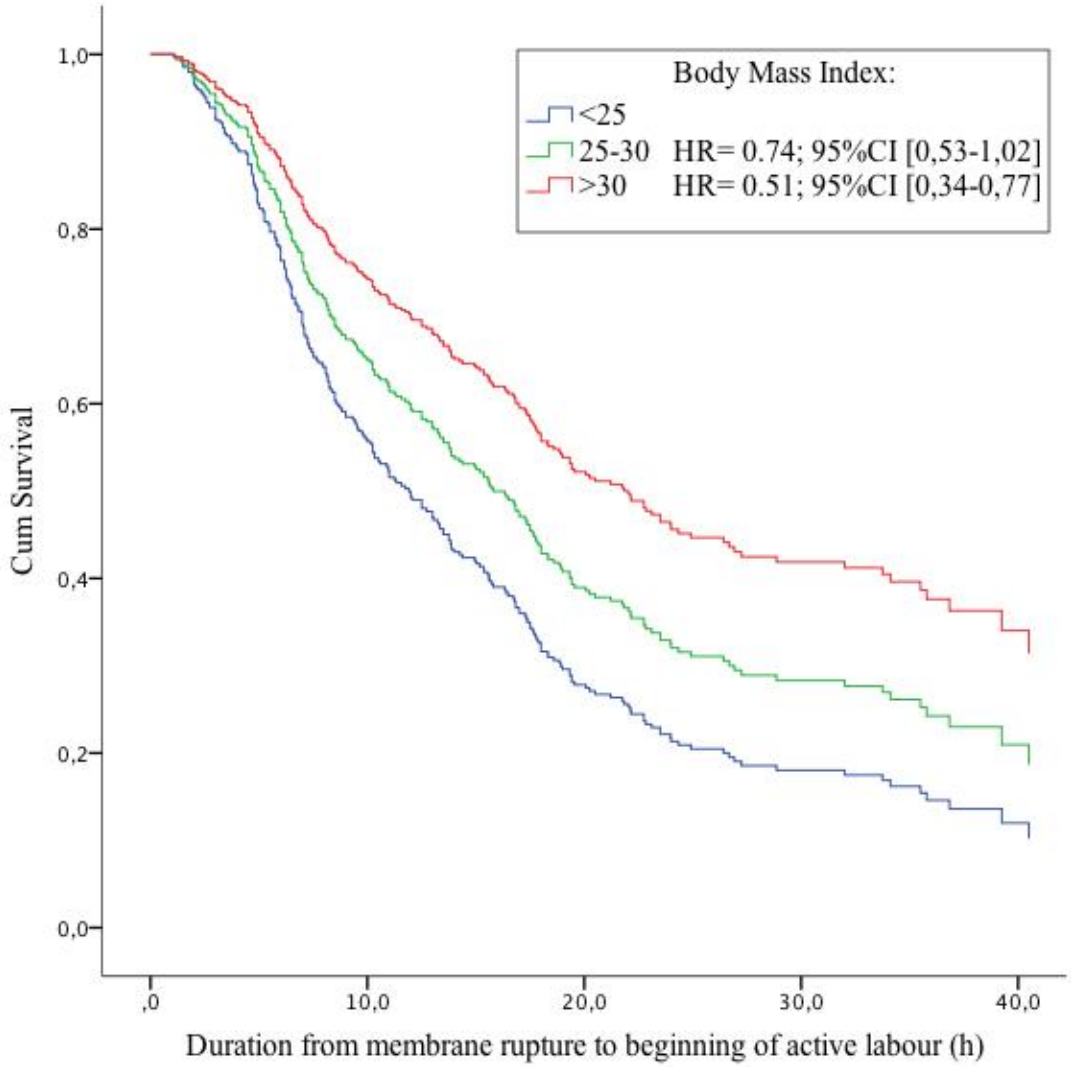
Objective: To describe the association between pre-pregnancy Body Mass Index (BMI) and duration of labour.
Materials and methods: Observational cohort study of 1885 nulliparous women with a single cephalic presentation from 37^0 to 42^7 weeks of completed gestation, in spontaneous or induced labour, at Nordsjællands Hospital, Hillerød, Denmark in 2011 and 2012.
Total duration of labour was defined as onset of regular contractions along with a dilated orificium ≥ 3cm until birth; 1st and 2nd stage of labour as start of active labour until fully dilated, and fully dilated until birth, respectively.
Results: The cohort included 1246 (66.1%) normal weighted (BMI<25), 350 (18.6%) overweight (BMI 25-30), and 203 (10.8%) obese women (BMI >30). No difference in total- or first stage duration of labour was found when stratifying by BMI, though second stage of labour was more accelerated in obese women (HR=1.29; 95%CI 1.08-1.55) compared to those of normal weight.
Both overweight (OR=1.62; 95%CI 1.18-2.22) and obese (OR=1.76 95%CI 1.20-2.58) were at increased risk of caesarean delivery, compared to women with BMI<25. Obese women had greater risk of an arterial cord pH<7.05 (OR=2.85; 95%CI 1.22-6.65) compared to those with BMI<25.
Conclusion: No significant effect of BMI on total duration of labour was identified, although a shorter second stage of labour was apparent for obese women. The risk of caesarean delivery increased with increasing BMI. Risk of an arterial cord pH<7.05 increased only for women with BMI>30.

296.00 PA025 Premature rupture of membranes, Body Mass Index and duration of labour

Karen Louise Ellekjaer (1), Thomas Bergholt (1), Ellen Loekkegaard (1)
(1) Nordsjællands Hospital, University of Copenhagen

Objective*:* To describe the association between pre-pregnancy BMI and labour duration in women with premature rupture of membranes (PROM), at term.
Materials and Methods: Observational cohort study of 1885 nulliparous women with a single cephalic presentation from 37^0 to 42^7 weeks of gestation, in spontaneous or induced labour, at Nordsjællands Hospital, Hillerød, Denmark in 2011 and 2012. PROM was defined as absence of regular contractions within the first hour of membrane rupture (MR). Time measures included duration from MR until active labour, defined as onset of regular contractions and dilated orificium ≥ 3cm, and from MR until birth.
Results: 416 women (22.1%) presented with PROM. Distribution was as follows BMI<25 64.4%, BMI 25-30 19.7% and BMI>30 12.7%. In total, 54.1 % entered active labour within 12 hours, 83.5% within 24 hours and 95.0% within 36 hours of MR. Compared to normal-weight, obese women had increased duration from MR until initiation of active labour (HR 0.51 95%CI 0.34-0.77) and interval from MR until birth (HR 0.66 95%CI 0.44-1.00).
Increased BMI in women with PROM was associated with higher rates of labour induction, augmentation, epidural analgesia and use of antibiotics (P<0.05). Women with BMI>30 compared to BMI<25 had increased risk of caesarean delivery (OR=2.93 95%CI 1.42-6.06). Increased BMI was associated with neonatal infection (P<0.05).
Conclusion: Duration from MR to beginning of active labour, and to birth, as well as risk of caesarean delivery was increased in obese women with PROM. Furthermore, PROM among obese was associated with increased neonatal infection rates.

Figure 1. Survival plot as a function of time from membrane rupture to beginning of active labour, in women with PROM, in either BMI category. Women were censored at time of induction.



162.00 PA026 Cardiovascular maternal deaths in Norway 1995-2011

Liv Ellingsen (1), Siri Vangen (1), Anne-Sofie Letting (2)
(1) Norwegian Resource Centre for Women`s Health, Oslo University Hospital, Norway
(2) Oslo University Hospital, Section for Obstetrics, Rikshospitalet, Norway

Background:
Cardiovascular diseases in pregnancy increases, and is the most common cause of indirect maternal deaths in European countries like England, Sweden, Denmark and Netherlands. The aim of the study was to identify maternal deaths with special emphasis on cardiovascular disease, and to identify learning points for clinical care through audit assessment.
Methods:
Information of maternal deaths in Norway 1995 -2009 was collected by linkage of The Medical Birth Registry, the Causes of Death Registry and information from obstetric wards. Medical records were requested in each case and closely scrutinized by the audit group. Learning points for clinical care were elaborated in cooperation with cardiologist and anesthesiologist.
Results:
In total we identified 68 maternal deaths in the period 1996-2011; 23 indirect and 45 direct deaths. Cardiovascular disease was the most common cause (n=10) of indirect maternal deaths: ratio 1/100.000 maternities. Five died from dilatation / dissection of aorta, 2 of myocardial infarction, 1 of pericarditis and 1 of myocarditis. One woman had a tumor in the left heart ventricle and died after heart biopsy. Further details of learning points for clinical care will be presented.
Conclusion:
Cardiovascular disease was the most common cause of indirect maternal deaths in Norway this periode. 50 % of these cases were related to dilatation /dissection of aorta.
Pregnant women with signs of moderate or severe cardiovascular disease should be referred to a tertiary referral center with a multidisplinary team experienced in the management of cardiovascular diseases during pregnancy.

134.00 PA028 Pregnancy in women with subclinical hypothyroidism is associated with impaired mitochondrial function - the link to adverse outcome?

Anne-Dorthe Feldthusen (1), Jacob Larsen (2), Palle Lyngsie Pedersen (2), Tina Toft Kristensen (2), Jan Kvetny (3)
(1) Dept. of Obstetrics & Gynecology, Næstved Hospital, Denmark
(2) Mitochondrial Research Unit, Næstved Hospital, Denmark
(3) Dept. of Internal Medicine, Næstved Hospital, Denmark

Objective: Overt hypothyroidism during pregnancy has clearly been associated with adverse outcome. However, association between subclinical hypothyroidism (subhypo) and adverse outcome remain less clear. Thyroid hormones regulate mitochondrial function by affecting both nuclear and mitochondrial gene expression. The aim was to examine the possible link between subhypo and mitochondrial dysfunction in relation to adverse outcome.

Methods Women in their third trimester of pregnancy (*n*=113) not receiving any thyroid medication were included in this cross-sectional study. All participants were interviewed and mitochondrial function and thyroid status was determined. All participants had concentrations of thyroid hormones (fT_4 and tT_3) within the reference range. In addition, gene expression of mitochondrial transcription factor A (TFAM) known to link thyroid hormone regulation of mitochondrial function was measured. As reference to TFAM gene expression a group of non-pregnant women were used as euthyroid controls. Subhypo was defined by TSH≥3.0 mmol/l.

Results: The expression rate in euthyroid pregnant women was lowered compared to non-pregnant controls (p<0.0001). In contrast was the gene expression rate of TFAM increased in pregnant women with subhypo compared to euthyroid pregnant women (p=0.02). Adverse pregnancy outcome was increased in subhypo women compared to euthyroid (p=0.02).

Conclusion: We observed a physiological downregulation of TFAM in euthyroid pregnant women, which was absent in pregnant women with subhypo. We hypothesise that unfavourable effects on mitochondrial function in women with subclinical hypothyroidism could be the link to an observed higher prevalence of adverse pregnancy outcome in this group.

346.00 PA030 Labour onset prior to elective caesarean section may increase the risk of neonatal morbidity

Julie Glavind (1,2), Ioanna Milidou (2), Tine Brink Henriksen (2), Niels Uldbjerg (1)
(1) Department of Obstetrics and Gynaecology, Aarhus University Hospital, Denmark
(2) Perinatal Epidemiology Research Unit, Aarhus University Hospital, Denmark

Background: With late term scheduling of elective caesarean section (CS), more women have an unscheduled procedure due to spontaneous onset of labour prior to their planned delivery date. Knowledge is sparse on neonatal outcomes associated with labour onset prior to an intended elective CS.
Aim: To compare the risk of neonatal adverse outcomes between neonates delivered by elective CS (elective group) and neonates delivery by an unscheduled CS, which was intended as elective (intended elective group).
Design: Cohort study with prospectively registered data.
Materials and methods: Within the Aarhus Birth Cohort 1990-2010 (n=105,883), we identified women who intended to deliver by elective CS (n=8,496). These were classified as an (a) elective CS group, consisting of women who delivered by elective CS, and (b) an intended elective group, consisting of women who's CS was unscheduled due to spontaneous onset of labour (contractions or rupture of membranes). Women with induced labour or presenting with an indication for emergency CS were excluded. Odds Ratios with 95% CI for adverse neonatal outcomes were calculated using a chi-squared test.
Results: A total of 6,673 women were analysed in the elective group and 1,253 women in the intended elective group. Both the risk of neonatal admission (OR 2.2, 95% CI 1.9; 2.5) and the risk of neonatal treatment with antibiotics (OR 3.3, 95% CI 2.6; 4.2) were significantly increased in the intended elective group.
Conclusion: Higher risk of adverse neonatal outcomes was observed among women with labour onset prior to an elective CS. Postponing elective CS close to term may increase neonatal morbidity.

237.00 PA031 Birth outcomes among women exposed to neuraminidase inhibitors during pregnancy: the NIPEC study

Sofie Graner (1), Tobias Svensson (1), Ditte Mølgaard-Nielsen, (2), Björn Pasternak (2), Anders Hviid (2), Helle Kieler (1)
(1) Centre for Pharmacoepidemiology, Karolinska Institutet, Stockholm, Sweden
(2) Department of Epidemiology reseach, Statens Serum Institut, Köpenhamn, Danmark

Background
Pregnant women are at increased risk of severe disease and death secondary to influenza infection. In addition, influenza and fever may increase the risk of adverse pregnancy outcomes. Neuraminidase inhibitors are used for treatment or post-exposure prophylaxis of influenza, but little is known about possible adverse effects of intrauterine fetal exposure.
Aim
To compare birth outcomes between women exposed and unexposed to neuraminidase inhibitors (oseltamivir and zanamivir) during pregnancy.
Method
We conducted an observational population based cohort study of all women giving birth to a singleton infant in Denmark and Sweden 2008-2010 (N=503 642). We excluded women who had been hospitalized for influenza or pneumonia during pregnancy. Information was obtained from the national health registers. Multivariate logistic regression was used to evaluate the risk of neonatal mortality, stillbirth, preterm birth, low Apgar score, low birth weight and small for gestational age (SGA), adjusting for maternal age, smoking in early pregnancy, BMI, morbidity, country of birth, sex and year of birth of the infant.
Results
A total of 2487 women filled a prescription for a neuraminidase inhibitor during pregnancy (417, 1056 and 1041 in 1st, 2nd and 3rd trimester, respectively). There was no significantly increased risk of neonatal mortality, stillbirth, preterm birth, low Apgar score, low birth weight and SGA. Results are presented in table 1.
Conclusion
No significantly increased risk of adverse birth outcomes following exposure to neuraminidase inhibitors during pregnancy was found in this large population based study including more than 500 000 women in two Nordic countries.

Outcome	Adjusted Odds ratio*	95% Confidence Interval
Neonatal mortality		
Yes	1,16	0.62-2.17
No	Ref	
Still birth		
Yes	0,88	0.42-1.86
No	Ref	
Gestational age, weeks		
Very preterm (≤31 w)	0,84	0.52-1.36
Moderate preterm (32-36w)	0,98	0.80-1.20
Term (37-41w)	Ref	
Postterm (≥ 42w)	0,89	0.75-1.05
Apgar score at 5 mins		
-6	0,97	0.64-1.47
7-	Ref	
Birth weight, grams		
Low (≤2499g)	0,79	0.62-1.01
Normal (2500-4499g)	Ref	
High (≥4500g)	1,06	0.86-1.32
SGA		
Yes	0,62	0.46-0.85
No	Ref	

* Adjused for maternal age, smoking during early pregnancy, BMI, maternal morbidity **, sex of the infant, birth year, and country of birth of the infant

** Maternal morbidity is defined as a composite variable for having filled a prescription for any of the drugs with the following ATC codes within 1 year prior to pregnancy

A10 Diabetes
B01 Anticoagulantia
C01-03, C07-09, Chronic heart failure incl hypertension and diuretics
H02 Oral corticosteriods
L01-04 Tumor repressive drugs
N05-06 Neuroleptics
R03 Chronic obstructive airways diseases

410.00 PA032 Pelvic arterial embolization in severe obstetric hemorrhage

Maiju Grönvall (1, 2), Minna Tikkanen (2), Maarika Metsätähti (2), Mikko Loukovaara (2), Jorma Paavonen (2), Vedran Stefanovic (2)
(1) Central Hospital, Obstetrics and Gynecology, Kotka, Finland
(2) University Central Hospital, Obstetrics and Gynecology, Helsinki, Finland

Objective. Massive postpartum hemorrhage (PPH) is a major life threatening complication. When conventional management fails pelvic arterial embolization (PAE) can be used. We have used PAE for over a decade in selected patients of acute PPH. Our primary aim was to analyze the safety and success rate of this procedure in our hospital.
Design. Retrospective case series (August 2001 - April 2011).
Setting. Tertiary teaching hospital.
Population. Forty-five patients with acute PPH managed by PAE.
Methods Chart review.
Main outcome measures. Achievement of definitive hemostasis by PAE in patients with acute PPH. Evaluation of the complication rate of PAE.
*Results.*The most common causes of PPH in patients treated with PAE were lower genital tract injury (40%), placental retention (36%), and uterine atony (13%). All patients had massive PPH and the mean blood loss was 9315ml (range 1500-20 000ml). The overall success rate of PAE was 89%. Five of the 45 patients needed additional procedures. Either hysterectomy or supravaginal uterine amputation was performed in six patients; in three patients before PAE and in three patients after PAE failed. The direct complication rate was 9%. Minor complications (inguinal hematoma and inguinal pain) occurred in three patients and a major complication (iatrogenic rupture of iliac artery) in one patient.
Conclusions. PAE is an effective and safe procedure to manage PPH when other procedures have failed. In many cases hysterectomy can be avoided and fertility preserved.

421.00 PA033 Health impact of postpartum hemorrhage managed by radiologic intervention

Maiju Grönvall (1, 2), Vedran Stefanovic (2), Jorma Paavonen (2), Minna Tikkanen (2)
(1) Central Hospital, Obstetrics and Gynecology, Kotka, Finland
(2) University Central Hospital, Obstetrics and Gynecology, Helsinki, Finland

Objective. The use of occlusion balloons (PC) with or without pelvic arterial embolization (PAE) is an effective treatment of postpartum haemorrhage (PPH). Data on long-term physical, reproductive and psychological health impact of these procedures are limited.
Design. Questionnaire.
Setting. University teaching hospital.
Population. Seventy-three patients with severe PPH managed by PC and/or PAE during years 2001-2011.
Methods. Patients were asked to answer a questionnaire concerning both physical and psychological aspects of their lives after having PPH and subsequent interventional radiology. Questionnaires were sent to patients without peripartum hysterectomy and to patients with peripartum hysterectomy.
Main outcome measures. Long-term impact on women's physical and psychological health.
Results. Forty-nine patients returned the questionnaires (66%). Of these, 18 women had peripartum hysterectomy performed and 31 had not. Long-term physical problems included dyspareunia (N=3), inguinal pain (N=1), pain in lower limb (N=2), and unspecified abdominal pain (N=2). Four patients reported irregular menstrual bleeding. Thirteen of the 31 patients had a total of 16 pregnancies, 13 of which proceeded to term. The newborns had normal birth weight. None of the 31 patients complained of infertility. PPH recurred during the next pregnancy in three of the 16 patients. Overall, 37 women (76%) reported problems with mental recovery and eight women developed long-term psychological problems. Fifteen patients reported they received no professional help after the PC/PAE experience.
Conclusions. Women with PPH managed by PC/PAE develop only minor adverse health problems but major psychological sequelae are common. This suggests that these women need appropriate psychological support.

389.00 PA034 Maternal mortality and number of children

Frode Halland (1), Nils Halvdan Morken (2), Lisa DeRoo (3), Kari Klongsøyr (4), Allen J. Wilcox (5), Rolv Skjaerven (6)
(1) IGS/UIB, Bergen University Hospital, Bergen, Norway
(2) IGS/UIB, Bergen University Hospital, Bergen, Norway
(3) IGS/UIB, Bergen, Norway
(4) IGS/UIB, Bergen, Norway
(5) NIEHS/NIH, Durham, North Carolina, USA
(6) IGS/UIB, Bergen, Norway

Objective: To assess the association between number of children and long-term maternal mortality.
Design: A population-based cohort study.
Setting: Medical Birth Registry of Norway (MBR).
Participants: All mothers within the Norwegian birth registry.
Main Outcome Measures:
Hazard ratios for maternal all-cause- CVD- and non-CVD mortality, age 40 to 69 years, by number of children.
Results: We find a J-shaped association between all-cause mortality and CVD mortality with increasing number of children in women with low education (≤10 years). When we look at women with more than 10 years of education there is no association.
Overall there is an increased mortality for mothers with only one child.
Conclusions: Mothers with more than 10 years of education have no significant increased long-time mortality with increasing number of children. In contrast mothers with low education have. Our findings, suggest that the association between increasing number of children and later life mortality is caused by negative lifestyle effects and not accumulation of adverse physiological changes over repeated pregnancies.
For women with only one child we find an increased risk for both CVD- and all-cause mortality in later life, independent of educational level. This suggests underlying negative physiological mechanisms associated with subfertility and chronic disease in women with only one child.

364.00 PA035 Reduction in stillbirths after new birth induction paradigm. Results of a national intervention

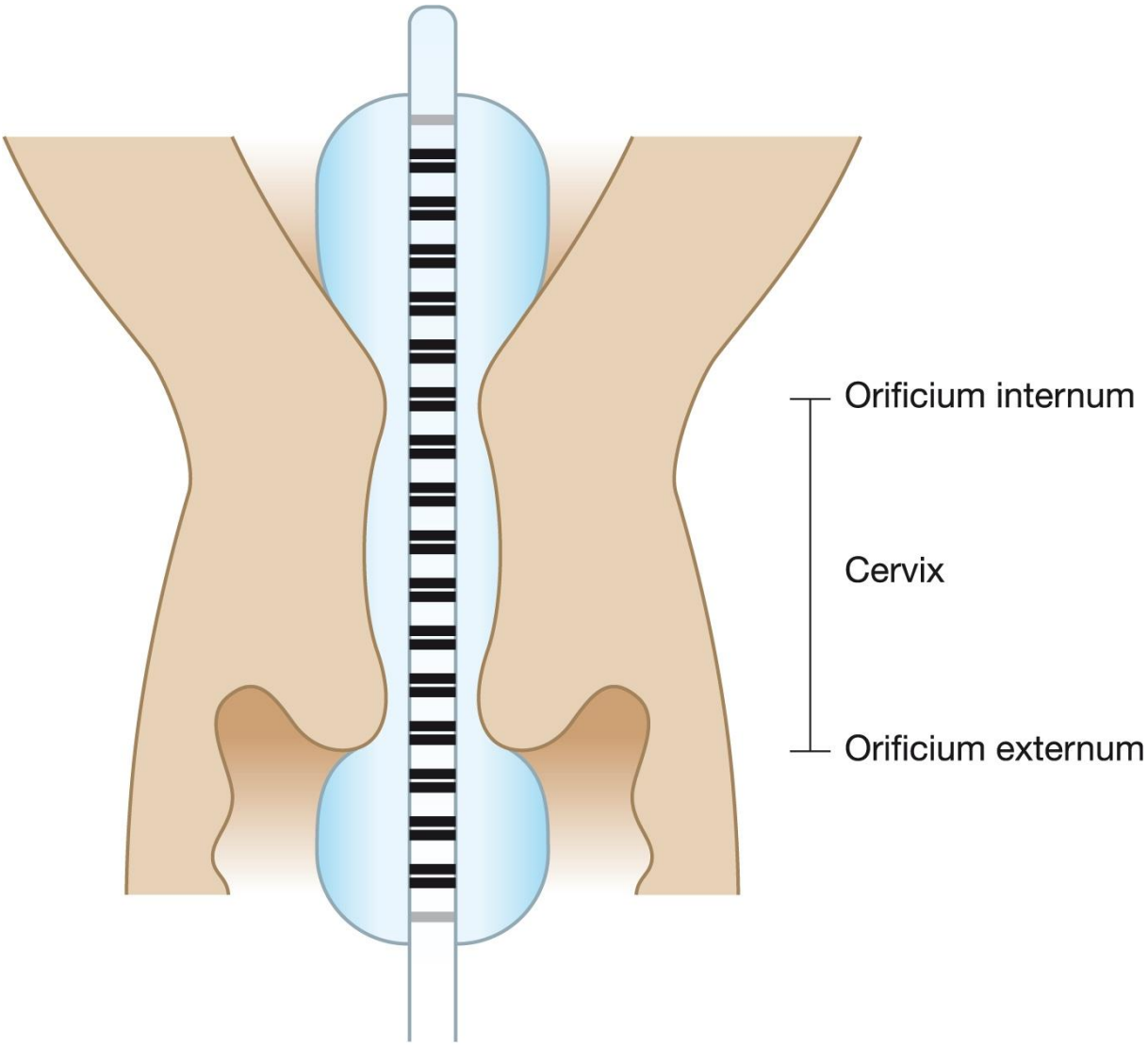
Mette Hedegaard (1), Øjvind Lidegaard (1), Charlotte Wessel Skovlund (1), Lina Steinrud Mørch (1), Morten Hedegaard (2)
(1) Department of Gynaecology, Rigshospitalet, University of Copenhagen.
(2) Department of Obstetrics, Rigshospitalet, Denmark.

Objective. The risk of fetal death increases steeply after 42 gestational weeks. From 2009, Danish national guidelines recommended pregnant women the offer of induction to ensure delivery before 42 weeks. The aim of this study was to describe the subsequent development in fetal deaths, and to identify and quantify contributing factors for the change.
Design. Historical cohort study.
Setting. Denmark
Participants. Women who delivered from January 1, 2000 to December 31, 2012.
Outcome measures. Stillborn per 1,000 pregnant women at risk and per 1,000 newborn in specific gestational weeks.
Results. During the study period, 829,165 children were live born and 3,770 (0.45%) stillborn. Labour induction increased from 12.4% to 25.1% ($p<0.001$), while children born ≥42 weeks decreased from 8.0% to 1.5% ($p<0.001$). Through the same period, the rate of stillbirths after 40 weeks fell from 2.1 to 0.8 per 1,000 newborn ($p<0.001$), and the risk of fetal death per 1,000 post term pregnancy weeks from 1.9 to 0.7 ($p<0.001$). The overall rate of stillbirths after 37 weeks fell from 2.4 to 1.4 per 1,000 newborn ($p<0.001$) and stillbirths after 41 weeks from 2.4 to 0.4 per 1,000 newborn ($p<0.001$). The regression analysis identified the general earlier induction, and focused earlier induction of adipose women, twins, women over 40 years, and a halving of smoking pregnant women as independent contributing factors for the decrease.
Conclusion. A gradually more offensive and a differential earlier labour induction practice apparently have the main responsibility for the substantial reduction in stillbirths in Denmark.

36.00 PA036 Cervical stiffness evaluated in vivo by EndoFlip in pregnant women

Lene Hee (1,2), Donghua Liao (2,3), Puk Sandager (1,2), Hans Gregersen (4,5), Niels Uldbjerg (1,2)
(1) Department of Obstetrics and Gynecology, Aarhus University Hospital, Denmark
(2) Institute of Clinical Medicine, Aarhus University, Denmark
(3) Department of Gastroenterology and Surgery, Aalborg University Hospital, Denmark
(4) Giome Center, College of Bioengineering, Chongqing University, Chongqing, China
(5) Giome FZE, Ras Al Khaimah, United Arab Emirates

Objective
To determine the stiffness of the pregnant uterine cervix in vivo.
Method
Five women in early pregnancy and six women in late pregnancy were included. The EndoFlip is a 1-m-long probe with a 12-cm-long bag mounted on the tip. The tip of the probe was inserted into the cervical canal (Figure 1). Sensors spaced at 0.5-cm intervals along the probe were used to determine 16 serial cross-sectional areas of the bag. The diameter of the cervical canal could thereby be determined during inflation with up to 50 ml saline solution.
Tissue stiffness was calculated from the geometric profiles and the pressure-strain elastic modulus (EP) at each sensor site. Three parts of the cervix were defined: the uterus-near part, the middle and the vaginal part. The EP_{max} was defined as the highest EP detected along the cervical canal.
Results
The EP_{max} was always found in the middle part of the cervix. The median EP_{max} was 243 kPa (IQR, 67- 422 kPa) for the early pregnant women and 5 kPa (IQR, 4 - 15 kPa) for those at term. In the early pregnant women the stiffness differed along the cervical length ($p<0.05$) whereas difference along the cervix was not found for late pregnant women. A positive correlation coefficient (Spearman's rho) was established between the EPs of the uterus-near and the middle part (0.84), between the vaginal and the middle part (0.81), and between the uterus-near and the vaginal part (0.85).
Conclusion
This new method can estimate the stiffness along the cervical canal in vivo. This method may be useful in the clinical examination of the biomechanical properties of the uterine cervix.


Orificium internum
Cervix
Orificium externum

141.00 PA037 Manual removal of placenta: Are prophylactic antibiotics indicated?

Sofie Hjortø (1)
(1) Department of Obstetrics, Roskilde Hospital, Roskilde, Denmark

Background: Intrauterine palpation implies a potential risk of bacterial contamination. However, use of prophylactic antibiotics contribute to the development of drug resistant bacterial strains. It is of paramount importance that the benefits of prophylactic antibiotics outweigh the potential harmful effects. The aim was to clarify whether prophylactic antibiotics are indicated for manual removal of placenta in vaginal birth.
Methods: Literature review using the search terms antibiotic prophylaxis or postpartum endometritis in combination with manual placenta removal or intrauterine palpation. The Pubmed, Embase and Cochrane Library databases were used. Limitations were human studies and English abstract or full-text.
Results: Only 3 of 11 articles were judged relevant. A Cochrane review found no randomized controlled trial comparing antibiotic prophylaxis and placebo to prevent endometritis after manual removal of placenta. A retrospective cohort study including 2137 patients found that manual removal of the placenta was a risk factor for postpartum endometritis after vaginal delivery with an adjusted OR of 2.9. A French study including 550 patients found both clinical and financial benefits from using prophylactic antibiotics for intrauterine manipulations (e.g. forceps delivery, manual placenta removal, uterine cavity exploration).
Conclusion: Manual removal of the placenta increase the risk of postpartum endometritis, and prophylactic antibiotics are beneficial for intrauterine manipulations. However the level of evidence is low (II-III). There is no level I evidence of the value of prophylactic antibiotics for manual placenta removal. Thus, no evidence-based answer to indicate the use of prophylactic antibiotics for manual removal of placenta in vaginal birth was found.

359.00 PA038 Postpartum hemorrhage: epidemiology and risk factors.

Sofie Hjortø (1)
(1) Roskilde University Hospital, Obstetrics and Gynecology, Roskilde, Denmark

Objective: Awareness of the presence of risk factors is of paramount importance in the prevention of postpartum hemorrhage (PPH). The aim was to review the incidence and risk factors for PPH including reported odd ratios.
Method: Literature review. The Pubmed database was searched using combinations of the terms “postpartum hemorrhage”, “risk factors”, “incidence”, “cohort study”, “case-control study”, “randomized controlled trial” or “controlled clinical trial”. The limits English language, human species and full-text available were used.
Results: Approximately 300 articles were identified. Duplets and articles found irrelevant were removed. The incidence of PPH and severe PPH was 3-14% and 1-5%, respectively. A tendency towards an increased incidence was found. Numerous risk factors for PPH were identified. The following were associated with greatest risk increase: preeclampsia (OR 2.2-5.0), placenta previa (OR 6.0-19.7), abruption (OR 2.0-12.6), previous PPH (OR 2.2-8.4), previous cesarean (OR 2.0-12.6), premature delivery (OR 2.2-2.8), multiple gestations (OR 2.2-4.7), macrosomia (OR 1.8-3.5), prolonged labor (OR 1.6-10.6), instrumental delivery (OR 1.5-1.9), cesarean (OR 1.3-1.7), episiotomy (OR 1.4-4.7), prolonged third stage (OR 2.6-7.6), retained placenta (OR 4.1-16.0) and soft-tissue lacerations (OR 1.4-4.8).
Conclusion: The incidence of PPH and severe PPH was 3-14% and 1-5%, respectively. Preeclampsia, placenta previa, abruption, previous PPH, previous cesarean, premature delivery, multiple gestations, macrosomia, prolonged labor, instrumental delivery, cesarean, episiotomy, prolonged third stage, retained placenta and soft-tissue lacerations were associated with high-risk of PPH. The majority of identified risk factors were known ante- or intrapartum. Recognizing these risk factors would enable preventive measures before PPH develops or deteriorates.

391.00 PA039 Eleven years' experience with intrapartum ST-analysis

Kaisa Holmberg (1,2), Susanna Timonen (1,2)
(1) Department of Obstetrics and Gynecology, Turku University Hospital
(2) University of Turku

Objective: To determine if a learning curve exists for the introduction of a new intrapartum fetal monitoring system into clinical practice and its impact on initial and subsequent obstetric outcomes.
Study design: Over eleven years, data were collected prospectively from labors monitored with an electronic fetal monitoring system using adjunctive ST-analysis. These data were analyzed retrospectively for the following primary outcomes: metabolic acidosis (cord artery pH <7.05 and a B_{Decf} >12.0 mmol/L), intrapartum fetal blood sampling and mode of delivery. Comparisons of these outcomes were made between the initiation period (the first two years) and the subsequent usage period (the next nine years).
Results: There was a significant decrease in obstetric interventions and metabolic acidosis when comparing the initial two years to the subsequent nine years following the addition of ST-analysis to basic CTG usage. In addition the need for fetal blood sampling decreased significantly.
Conclusion: Introduction of a novel intrapartum fetal monitoring system does involve a learning curve following which improved outcomes, signaled by the lower rates of metabolic acidosis and operative deliveries that were observed.

265.00 PA040 Human in vivo studies of placental glucose and lipid gradients

Ane Moe Holme (1), Marie Ceicilie Paasche Roland (1), Trond Melbye Michelsen (1,2), Tore Henriksen (1,3)
(1) Department of Obstetrics, Oslo University Hospital, Norway
(2) National Resource Centre of Women's Health, Oslo University Hospital, Norway
(3) University of Oslo, Norway

Introduction: The future health of the fetus is affected by the intrauterine metabolic environment and by how effectively the fetus obtains and prioritizes nutrients. We present an in vivo model to study transfer of nutrients across placenta in humans. Here we describe arteriovenous glucose and lipid gradients in the maternal and fetal circulations and across placenta.
Method: A cross-sectional in vivo study including 40 healthy women with uncomplicated pregnancies undergoing planned caesarean section. Glucose, total cholesterol, LDL-cholesterol, HDL-cholesterol and triglycerides were measured in blood samples from incoming and outgoing vessels at the maternal (radial artery and uterine vein) and the fetal (umbilical artery and vein) side of the placenta.
Results: The arteriovenous gradients are presented in table 1. Maternal arterial glucose concentration was correlated with the fetal venous glucose concentration ($r=0.86$, $p<0.001$), but not with the umbilical v-a difference (reflecting fetal uptake). The maternal-fetal gradient was correlated to the umbilical v-a difference ($r=0.81$, $p<0.001$). The maternal plasma levels of total cholesterol, LDL, HDL and triglycerides were neither correlated with the fetal plasma levels nor the umbilical v-a difference. There were no correlation between the maternal-fetal gradient and the umbilical v-a difference for these compounds.
Conclusion: In contrast to glucose we found neither significant arteriovenous concentration differences of lipids nor correlations between the maternal and fetal concentrations. This may indicate that the term fetus is not dependent of maternal cholesterol supply. However, the placental transfer of cholesterol per liter blood may be below detection level, but still of physiological significance.

163.00 PA041 Neonatal outcome and delivery mode in labors with repetitive fetal scalp blood sampling

Malin Holzmann (1), Stina Wretler (1), Sven Cnattingius (2), Lennart Nordström (1)
(1) Department of Women's and Children's Health, Karolinska Institutet
(2) Clinical epidemiology unit, Department of Medicine, Karolinska Institutet

Objective: To investigate if repeat (≥3) fetal blood sampling (FBS) is associated with increased risk of caesarean delivery and worse neonatal outcome than occasional (1-2) FBS during labor.
Materials and methods: Prospective cohort study of women who underwent intrapartum FBS during two years at Karolinska University Hospital Solna, Sweden. FBS with lactate analysis was performed if the attending doctor assessed the cardiotocography (CTG) tracing non-reassuring. Lactate concentration was measured bedside. As a routine in all deliveries, blood samples were taken from umbilical artery and vein immediately after delivery for acid-base analyses. Outcome measures were metabolic acidemia in umbilical artery at birth, Apgar score<7 at five minutes, and caesarean delivery.
Results: During the study period there were 2134 FBSs performed on 1070 labouring women with a median of two samplings (range 1-8). There were no differences in Apgar score < 7 at 5 min or metabolic acidemia in umbilical artery blood at birth between labours with 1-2FBSs and ≥ 3 FBSs. Among women who underwent 1-2 FBSs, 23% had a cesarean delivery as compared with 42 % of those having ≥ 3 FBSs during labor. After adjustment for confounders, repeat FBS remained an independent risk factor (adj OR 2.0; 95% C.I.1.5-2.8).
Conclusion: Monitoring a woman in labor with repetitive FBSs (≥3) is safe for the baby but doubles the risk for a cesarean delivery as compared to those having 1-2 FBS. Still 60% will be delivered vaginally, and 1/3 of these spontaneous.

Table 1 Characteristics of the study population.

	Total population N=1070	1-2 FBS N=795	≥ 3 FBS N=275	P-value*
Maternal age (years)				
≤24	137 (12.8)	106 (13.3)	31 (11.3)	0.378
25-35	725 (67.8)	535 (67.3)	190 (69.1)	0.583
≥36	208 (19.4)	154 (19.4)	54 (19.6)	0.924
Nulliparous	772 (72.1)	563 (70.8)	209 (76.0)	0.10
Previous cesarean delivery	109 (10.2)	75 (9.4)	34 (12.4)	0.16
Gestational age (weeks^{days})				
34^0-36^6	36 (3.4)	30 (3.8)	6 (2.2)	0.207
37^0-40^6	724 (67.7)	560 (70.4)	164 (59.6)	0.001
≥41^0	310 (29.0)	205 (25.8)	105 (38.2)	<0.001
Induction of labor	380 (35.5)	263 (33.1)	117 (42.5)	0.005
Birth weight class				
SGA	48 (4.5)	31 (3.9)	17 (6.2)	0.109
AGA	984 (92.5)	736 (92.9)	248 (91.2)	0.344
LGA	32 (3.0)	25 (3.2)	7 (2.6)	0.627
Birth weight (grams)				
<2 500	30 (2.8)	22 (2.8)	8 (2.9)	0.902
2500-3999	858 (80.2)	635 (80.1)	223 (81.7)	0.756
4000-4500	149 (13.9)	113 (14.2)	36 (13.2)	0.643
>4500	29 (2.7)	23 (2.9)	6 (2.2)	0.531

[a] p calculated with Chi square test between subgroups

Table 2. Delivery mode and neonatal outcome in the two groups. n (%)

	1-2 FBS	≥ 3 FBS	P*
Spontaneous vaginal delivery	366/795 (46.0)	52/275 (18.9)	0.000
Instrumental delivery	245/795 (30.7)	108/275 (39.6)	0.008
Cesarean delivery	185/795 (23.3)	115/275 (41.8)	0.000
Apgar < 7 at 5 min**	9/794 (1.1)	6/272 (2.2)	0.19
UA-pH < 7.0***	7/618 (1.1)	2/234 (0.9)	0.72
UA-pH < 7.10***	34/618 (5.5)	7/234 (3.0)	0.12
Metabolic acidemia in umbilical artery***	11/616 (1.8)	3/234 (1.3)	0.61
Resuscitation	3/795 (0.4)	2/275 (0.7)	0.46
Respirator care/CPAP	22/795 (2.8)	10/275 (3.6)	0.47
Meconium aspiration	5/795 (0.6)	0/275	0.19
Hypoxic ischemic encephalopathy	0/795	1/275 /0.4)	0.09
NICU admission	42/795 (4.3)	17/275 (6.2)	0.57

*p calculated with Chi2

**4 cases with no Apgar score noted

***218 cases with no or incomplete umbilical blood samples noted

325.00 PA042 Incidence and outcome of subclinical hypothyroidism in early pregnancy

Frida Hosseini Akram (1), Bengt Johansson (2), Jan Calissondorff (3), Ricard Ljung (4), Britt-Marie Landgren (5), Anneli Stavreus-Evers (6), Lottie Skjöldebrand-Sparre (1)
(1) Division of Obstetrics and Gynaecology Danderyds Hospital, Karolinska Institutet
(2) Division of Obstetrics and Gynaecology Danderyds Hospital,Stockholm, Sweden
(3) Department of Clinical Sciences,Karolinska Institutet,södersjuhusetStockholm,Swe
(4) Institutet of enviromental medicine,Karolinska Institutet,Stockholm, Sweden
(5) Karolinska Institute,Karolinska University Hospital Huddinge, Stockholm, Sweden
(6) Department of Women´s and Children's health, Uppsala University, Sweden

Context: Hypothyroidism has been associated with adverse pregnancy outcome as hypertension, preeclampsia and preterm delivery. Thyroid hormones are necessary for human neurodevelopment. Fetal thyroid glands doesn´t start to secrete thyroid hormones until 18 to 20 weeks of pregnancy, and maternal thyroid hormones are therefore of importance.
Objectives: The main aim of this study was to compare the incidence of hypothyroidism and subclinical hypothyroidism in "high-risk" pregnant women compared to "low-risk group". Secondly, clinical follow up on pregnancy complications after levothyroxine treatment was performed.

Design, Setting, and Participants: A prospective study, performed between 2009 and 2010, included 665 pregnant women in gestational week 9 from two maternal care units in Stockholm. The women were divided into two groups, one "high risk" group with inheritance and/or suspicion of thyroid disease and one "low-risk" group. Serum levels of TSH and free T4 were determined.
Results: In the low risk group, 14% had TSH ≥2.0 IU/L and were treated with levothyroxine according to local guidelines. In the "high-risk" group 19% of women had TSH ≥2.0. There was no difference in pregnancy outcome between treated women and healthy controls.
Conclusions: Selective screening of pregnant women with high risk of thyroid disease reveal that 14 % of the low risk women is not diagnosed and treated. Treatment of these women reduces the higher risk of pregnancy complications to the same as for healthy women. Therefore, we strongly recommend general screening of thyroid function in early pregnancy.

199.00 PA043 Chorioamnionitis as a risk factor in early preterm stillbirth

Ingela Hulthén Varli (1), Marius Kublickas (1), Nikos Papadogiannakis (2), Karin Pettersson (1)
(1) Department of Obstetrics and Gynaecology, Karolinska University Hospital, Solna and Karolinska Institutet.
(2)Centre for Perinatal Pathology, Department of Pathology, Karolinska University Hospital, Huddinge and Karolinska Institutet.

Background: Infection is a common cause of stillbirth, especially at an early gestational age. Different infectious agents are widely presumed to produce distinct patterns of inflammation in the placenta. Bacterial infections are associated with a maternal inflammatory response, histological acute chorioamnionitis (CAM) defined as polymorphonuclear leucocytes in the chorion/amnion and later, an additional histological foetal inflammatory response (FIR) defined as vasculitis in placental and/or cord vessels, and funisitis. The aim of this study was to compare placental findings from early preterm stillbirths with gestational week-matched liveborn infants. The main focus was to investigate the differences in the presence and distribution of inflammatory signs in the placentas of these two groups. **Methods: A** case-control study of early preterm (22+0 to 32+6 gestational weeks) stillbirths (cases, n=112) and gestational week-matched liveborn infants (references, n=166) in Stockholm. Relevant **clinical data were collected from a web-based database (for cases) and delivery records (for references).** Macroscopic and histological examinations of placentas were performed according to a structured protocol (placental weight relative to gestational age, accelerated villous maturation, infarction, intervillous thrombosis, foetal thrombosis, chronic villitis and CAM with and without FIR. **Statistical analyses were performed using a multivariable logistic regression. Results**: Small for gestational age (AOR: 2.13 CI: 1.26-3.62) and CAM without FIR (AOR: 2.44 CI: 1.10-5.41) were associated with an elevated risk of preterm stillbirth. **Conclusions**: CAM without FIR is associated with a higher risk for stillbirth in early preterm pregnancies.

245.00 PA044 Uterine rupture- case report of three cases of uterine rupture with unusual location.

Background: Spontaneous uterine rupture is a life threatening event for both mother and fetus. The risk is estimated to be less than 1 % in women with one prior low transverse cesarean section. In women with an unscarred uterus the risk is estimated to be between 1 in 8000 and 1 in 15 000. Cases: we present three cases of posterior uterine rupture. Two diagnosed after vaginal delivery and one diagnosed during cesarean after failed trial of vacuum delivery. Conclusion: the clinician must remember that uterine rupture is a possibility in any laboring patient also after vaginal delivery. The presenting symptoms are abdominal pain, hypovolemia and fetal compromise if the child is not already delivered.

181.00 PA045 Information prior to and after second trimester ultrasound examination, documentation and handling on soft markers in Sweden.

Information prior to and after second trimester ultrasound examination, documentation and handling on soft markers in Sweden.

Charlotta Ingvoldstad (1,2), Peter Lindgren (1), Afsaneh Roshanai (2)
(1) Fetal medicine, Obstetrics and Gynecology, Karolinska University Hospital
(2) Dept. for public health and caring science, Uppsala University

Aim: To explore the procedure of information, documentation and handling on soft markers in Sweden.
Methods: 49 clinics answered a study specific questionnaire about the provision of information, risk estimation and follow-up strategies in relation to observed soft markers.
Results: The majority did not provide pre-ultrasound information regarding soft markers. Almost half wanted to provide prospective parents with this information, and a substantial part believed that parents wished to receive pre-ultrasound information about assessment of soft markers. The routine to inform or not inform of observed soft markers varied widely between the clinics. 17% of the clinics did inform of all observations while 11% did not inform regardless of the women's' age or number of markers. The majority did inform and offer supplementary invasive prenatal diagnosis based on the number and type of markers, structural malformation, level of estimated risk, women's age and worry. Some clinics did not provide any information about the observed markers to women who had undergone CUB (14 %) or invasive prenatal diagnosis (18%).
In 61% of the clinics, observed markers were recorded only if the mother was informed about the findings. In 28% of clinics observed markers were recorded even when women were not informed.
Conclusion: Information regarding assessment and importance of observed soft markers seems to be insufficient, and provision of information and documentation of findings appears to be handled differently around Sweden, suggesting that national guidelines is necessary for equality regarding ultrasound and soft marker handling.

182.00 PA046 Prospective parents' information request regarding soft markers prior to ultrasound examination in second trimester

Charlotta Ingvoldstad (1,2), Peter Lindgren (1), Karin Nordin (2), Afsaneh Roshanai (2)
(1) Dept. of Obstetrics and Gynecology, Karolinska University Hospital, Stockholm
(2) Dept for public health and caring science, Uppsala University, Uppsala

Purpose: The aim of the current study was to examine informational request of potentially prospective parents' regarding assessment of soft markers and its importance when observed at the ultrasound scanning in the second trimester.
Method: A cross-sectional survey was conducted on 85 Swedish University students. Data was collected by a study specific questionnaire, and by means of eleven hypothetical scenarios including different parameters such as disease/syndromes/malformations with different characteristics, and based on location of the markers (in which organ the markers were observed).
Results: Almost all participants wished to be informed prior to the examination, about assessment of the soft markers, as well as the significance of soft markers. However, the number of respondents who required information about an actual finding was considerably less. Several participants wanted to be informed about detected markers in serious conditions, such as Downs syndrome, but not when the markers indicated an increased risk of a treatable disease. Also the marker location was of importance for the participants. The majority of respondents wished to be informed about the soft markers if they were observed in the heart or brain of the fetus compared to when it was located in the intestine or skeleton.
Conclusion: Providing prospective parents with information about assessment of soft markers and its significance prior to the examination can improve the parents possibility to make informed choice whether to receive information about an actual finding. Providing health care professionals with guidelines regarding soft markers should be a mandatory part of antenatal care.

69.00 PA048 Painful breastfeeding in relation to an educational program for midwives

Margareta Johansson (1), Britt-Inger Malmborg (2), Maria Ulrichs Lindberg (2), Margareta Hammarström (1)
(1) Karolinska Institutet, Department of Clinical Science and Education, Södersjukhuset, Sweden
(2) The Maternity Clinic at Södersjukhuset, Stockholm, Sweden

Introduction: Breastfeeding is an important health indicator with health benefits. Painful breastfeeding is common during the postpartum period and those with severe pain during the first weeks after birth are more likely to develop depression and discontinue breastfeeding. *The aim*: To investigate the effect of an educational program for midwives on the prevalence of painful breastfeeding during the postnatal period. An additional aim was to describe factors associated with painful breastfeeding.
Method: A Swedish prospective longitudinal study including an educational program for midwives. Data registered in medical hospital files from October 2011to October 2012 was examined. Inferential statistics and logistic regression were used.
Results: In total, 987 mothers were included. During the postnatal care 19.5% mothers experienced painful breastfeeding, at discharge 8.8% ($\rho<0.001$), and at the follow-up visit 17.5% (compared to postnatal care $\rho=0.104$). Painful breastfeeding was related to cracked nipples and infants supplementary fed. Multiparous and mothers with infants having neonatal intensive care were less likely to have painful breastfeeding. After the educational program 22.7% reported painful breastfeeding compared with 26.8% at base-line. Mothers' breastfeeding pain was more likely assessed with Visual Analogue Scale and their breastfeeding temporarily ceased after the intervention.
Conclusions: Painful breastfeeding was common and was slightly reduced after the intervention. More mothers had their pain assessed with Visual Analogue Scale and had the breastfeeding temporarily ceased after the educational intervention. Painful breastfeeding should be prevented, identified and treated.

91.00 PA049 Does IPV of the Non-vertex Second Twin Have a Place in Modern Obstetrics?

Fjóla Jónsdóttir (1), Lonny Henriksen (2), Niels Jørgen Secher (3), Nanna Maaløe (4),
(1) Department of Gynecology and Obstetrics, Copenhagen University Hospital,Roskilde, Denmark
(2) The Research Unit Women's and Children's Health, The Child and Adolescent Clinic, Denmark
(3) Department of Gynecology and Obstetrics, Skejby Hospital, Denmark
(4) Department of Gynecology and Obstetrics, Hvidovre University Hospital, Copenhagen, Denmark

Objective:
To compare neonatal outcome of the second non-vertex twin delivered by either internal podalic version (IPV) followed by breech extraction or emergency cesarean delivery (CD) after vaginal delivery of the first twin.
Methods:
In this retrospective cohort study, all women with twin pregnancies (1997–2012), gestational age ≥ 34 weeks, vaginal delivery of first twin, and delivery of second non-vertex twin by either emergency CD or IPV and breech extraction were extracted from the Danish National Patient Register. Data were linked to the Danish National Birth Register and neonatal outcome variables extracted. CD cases with 5-minute Apgar < 7 and all IPV cases were validated by scrutiny of patient records. Furthermore the experience level of obstetricians was recorded.
Results:
After validation, 457 births were available for analysis. In 39 cases, delivery of the second twin was by IPV and breech extraction, the remaining 418 by CD.
Compared to the CD group, the IPV group had a significantly lower risk of asphyxia, and though non-significant, umbilical cord pH levels were higher and fewer babies needed mechanical ventilation.
Thirty IPV and breech extractions were performed by obstetricians with > 5 years of clinical experience and three by trainees under supervision.
Conclusion:
Results suggest a slight tendency toward better neonatal outcome of IPV followed by breech extraction than of combined vaginal/CD. Considering the maternal risks of CD, the technique of IPV and breech extraction for the second non-vertex twin should remain an important option and needs to be taught to young trainees.

310.00 PA050 NT-proBNP as a 2nd trimester biomarker for prediction of preeclampsia

Katja Junus (1), Anna-Karin Wikström (1), Anders Larsson (2), Matts Olovsson (1)
(1) Department of Women's and Children's Health, Uppsala University, Uppsala, Sweden
(2) Department of Medical Sciences, Uppsala University, Uppsala, Sweden

Background No established biomarkers to predict preeclampsia exists today. At the time of diagnosis plasma levels of NT-proBNP are elevated in women with preeclampsia compared with healthy pregnant women. However, it is not known if the levels are elevated in the second trimester.

Aim The aim of this study was to evaluate NT-proBNP in maternal plasma as a second-trimester biomarker for preeclampsia.

Methods Plasma concentrations of NT-proBNP were measured in cases (n=22) and controls (n=44) at 16-19 weeks of gestation. Cases were women who later developed preterm preeclampsia at gestational age 34 + 6 or earlier. The controls were healthy pregnant women, matched to the cases based on gestational age at the time of sampling, parity and maternal age, whose pregnancies continued normally.

Results The second-trimester plasma concentrations of NT-proBNP were similar in cases that later developed preeclampsia (47 [25-132] pg/ml) and controls whose pregnancies continued normally (55 [15-184] pg/ml).

Conclusion Second trimester concentrations of NT-proBNP can not be used as a biomarker to predict preterm preeclampsia.

192.00 PA051 The effect of SSRI treatment and maternal depression on NGF signaling in placenta.

Helena Kaihola (1), Jocelien D.A. Olivier (1,2), Dick Schijven (1), Inger Sundström-Poromaa (1), Helena Åkerud (1)
(1) Uppsala University, Department of Women's and Children's Health, Uppsala, Sweden
(2) Karolinska Institutet, Center for Gender Medicine, Stockholm, Sweden

Women are at increased risk of becoming depressed during pregnancy and almost 20% are affected. Selective serotonin reuptake inhibitors (SSRIs) are the most prescribed anti-depressive treatment. Maternal depression itself might have long-lasting effects on the child and SSRIs can cause fetal malformations and behavioral disorders. The Neurotrophic Growth Factor (NGF) signaling pathway is known to be of relevance in depression. Based on this, we investigated by immunohistochemistry if there are differences in the NGF signaling pathway, when comparing placenta from depressed women with placenta from SSRI-treated women and healthy controls. We found that NGF, TrkA, Raf-1, RhoA, ROCK1 and ROCK2, all known as proteins in the NGF signaling pathway, were present in trophoblasts in placenta, except for ROCK1 that was more common in endothelium. NGF was found at higher levels in placentas from SSRI-treated women compared to depressed and controls. We did not find any significant changes in staining intensity of RhoA or total Raf-1 between the groups, but activated phosphorylated Raf-1 was increased in stromal cells in depressed and SSRI-treated women compared to controls. Furthermore, we found that the presence of ROCK2 was increased in depressed and SSRI-treated women compared to controls. In endothelium ROCK2 was decreased in SSRI-treated women compared to depressed patients. Our results indicate that NGF signaling in placenta might be mediated via Raf-1 to ROCK2 and not via RhoA. In conclusion, depression as well as SSRI affects NGF signaling, but there is a difference how SSRI interacts with the NGF pathway compared to depression only.

234.00 PA052 The effect of alcohol binge drinking in early pregnancy on birth weight, length at birth, head and abdominal circumference

Ulrik Schiøler Kesmodel (1,2), Tine Brink Henriksen (3,4), Morten Søndergaard Jensen (3,4), Katrine Strandberg-Larsen (5)
(1) Department of Obstetrics and Gynaecology, Aarhus University Hospital, Aarhus, Denmark
(2) Department of Clinical Medicine, Aarhus University, Denmark
(3) Perinatal Epidemiology Research Unit, Aarhus University Hospital, Aarhus, Denmark
(4) Department of Paediatrics, Aarhus University Hospital, Aarhus, Denmark
(5) Section of Social Medicine, Department of Public Health, University of Copenhagen, Denmark

Background: Daily alcohol intake in pregnancy may adversely affect fetal growth. Alcohol binge drinking (≥5 alcohol containing drinks on a single occasion) is common in early pregnancy, but the effect on fetal growth is largely unknown. We assessed the potential effect of binge drinking in early pregnancy, including number and timing of binge episodes, on fetal growth as measured by birth weight, length at birth, head and abdominal circumference.
Methods: We used data from two large independent birth cohorts, the Aarhus Birth Cohort (ABC) and the Danish National Birth Cohort (DNBC), including data on 30,521 and 78,464 pregnancies resulting in live born singletons, respectively. Information on binge drinking was collected by self-administered questionnaires (ABC) and telephone interviews (DNBC) in the second trimester. Information on anthropometric measures at birth was obtained from the Danish Medical Birth Registry.
Results: The two cohorts differed in the distribution of binge drinkers and important demographics and maternal characteristics. In the adjusted analyses, no substantial or systematic associations were observed in any of the cohorts between binge categories and any of the anthropometric measures. A small increase in birth weight of 13-15 g was observed among binge drinkers with no weekly alcohol intake, and a small reduction in birth weight was observed among binge drinkers reporting ≥4 drinks/week (-43.5 g (-10.7—23.7) in the ABC and -57.3 g (-26.1 — -88.4) in the DNBC).
Conclusions: Alcohol binge drinking in early pregnancy was not systematically associated with weight, length, head circumference or abdominal circumference at birth.

230.00 PA054 Increased rate of labor induction does not lead to an increased risk of operative deliveries in high-risk pregnancies

Ida Kirkegaard (1), Anne Zizzo (1), Anja Pinborg (2), Niels Uldbjerg (1)
(1) Dept. of Obstetrics and Gynecology, Aarhus University Hospital, Skejby
(2) Dept. of Obstetrics and Gynecology, Copenhagen University Hospital, Hvidovre

Objective:
In pregnant women with an a priori high risk for Caesarean section or vacuum extraction, we investigated if the rate of operative deliveries changed with an increased labor induction rate, after implementation of new national guidelines for management of post-date pregnancies in 2011. The guidelines included earlier labor induction, changing from 42^{+0} weeks to 41^{+3} - 41^{+5} weeks in pregnancies without risk factors and 41^{+0} weeks in case of maternal age > 40 years or BMI > 35.
Material and methods:
Data was retrieved from the Danish Medical Birth Registry and included all singleton pregnancies beyond 41^{+0} weeks during January 2007 to December 2012 (N=90.182). Incidence rates of labor induction, Caesarean section and vacuum extraction were measured per year, and logistic regression analyses were used to compare the rates in 2010 and 2012, e.g. before and after implementation of the new guidelines.
Results:
The rate of labor induction increased significantly from 2010 to 2012 in pregnant women with age > 40 years (OR, 2.11; 95%CI, 1.59–2.78), BMI > 35 (OR, 2.83; 95% CI, 2.25 – 3.55) and primiparity (OR, 1.67; 95% CI, 1.55 – 1.79). The rate of Caesarean section and vacuum extraction did not increase concomitantly. In primiparous women the rates actually declined significantly for both Caesarean section (OR, 0.92; 95% CI, 0.85 – 0.99) and vacuum extraction (OR, 0.91; 95% CI 0.83 – 0.99).
Conclusion:
A more aggressive induction policy in post-date pregnancies, especially towards pregnant women with certain risk factors, do not lead to an increase in the rate of operative deliveries for these women.

333.00 PA055 Spontaneous hepatic rupture associated with severe preeclampsia.

Anja Kirstein (1), Ulla Christiansen (1)
(1) Department of Gynecology & Obstetrics, Aalborg University Hospital, Denmark

Hepatic rupture is a very rare and potentially life threatening complication to severe preeclampsia and HELLP syndrome. The classic presentation is acute onset of pain in the upper right quadrant of the abdomen alongside other symptoms of preeclampsia. The majority of case reports have been on multiparous women older than 30 years of age. We would like to present a Danish case of a 27 year old nulliparous, previously healthy, woman in 28 weeks of gestation with 2 days of pain in the right shoulder and upper right quadrant of the abdomen. She was admitted to the labour ward with high BP (161/116 mm Hg) and heavy proteinuria (5 +). Bedside ultrasound examination showed normal fetal wellbeing, incl. a normal flow in the umbilical artery. Dexamethasone 12 mg and magnesium sulfate was administered, blood samples showed normal platelets and only slightly elevated liver enzymes. An emergency caesarian section was performed only 4 hours after admission due to severe abdominal pain and fetal bradycardia. A small for gestational age baby boy was delivered. When opening the abdomen the surgeons discovered approximately a liter blood, after the caesarian section was performed, the incision was widened and the surgeons discovered a rupture and a hematoma in the right side of the liver. The liver was packed with towels, and the patient was admitted at the intensive care unit. Second look surgery, performed nearly 2 days later, showed a large hematoma, no bleeding. The patient was discharged 10 days later.

282.00 PA056 Validity of preeclampsia in the Medical Birth Registry of Norway for women in the Norwegian Mother and Child Cohort Study.

Kari Klungsøyr (1,2), Quaker E. Harmon (3), Linn Beate Skard (2), Ingeborg Simonsen (1), Elise Austvoll (1), Elin Alsaker (4), Anne Starling (3), Lill Trogstad (5), Per Magnus (6), Stephanie M. Engel (3)
(1) Department of Global Public Health and Primary Care, University of Bergen, Norway
(2) Medical Birth Registry of Norway, Norwegian Institute of Public Health
(3) Department of Epidemiology, University of North Carolina at Chapel Hill, USA
(4) Division of Public Rel.&Inst. Resources, Norwegian Institute of Public Health
(5) Division of Infectious Disease Control, Norwegian Institute of Public Health
(6) Division of Epidemiology, Norwegian Institute of Public Health

Background: The Norwegian Mother and Child Cohort study (MoBa), a prospective population-based pregnancy cohort, is a valuable database for studying causes of preeclampsia. Preeclampsia information in MoBa comes from the Medical Birth Registry of Norway (MBRN), thus, we wanted to study the validity of MBRN preeclampsia registration for MoBa women.
Methods: We selected all MoBa pregnancies with preeclampsia registered in the MBRN (N=4081) and a random control group (N=2000) without preeclampsia registrations. After excluding two delivery units not participating in MoBa and one no longer operating, units were asked to provide copies of antenatal charts with blood pressure and urinary measurements from all antenatal visits during pregnancy, and hospital discharge codes from the delivery stay. We received data for 5340 pregnancies delivered 1999-2010 (87% of all eligible). We calculated positive predictive value (PPV), sensitivity and specificity of MBRN registration, using hypertension and proteinuria on the antenatal charts and/or hospital discharge codes indicating preeclampsia as gold standard.
Results: Overall PPV was 83.9% (95% confidence interval 82.7, 85.1), and was higher when women were primiparous, or delivered preterm or low birth weight infants. Severe preeclampsia in the MBRN was found to be a true severe preeclampsia in 70% of cases. Extrapolating to the total MoBa population, the estimated sensitivity was low: 43.0% (41.8, 44.2), while specificity was high: 99.2% (99.1, 99.3). False negative cases seemed to have mild forms of preeclampsia.
Conclusions: PPV and specificity of preeclampsia registration in the MBRN during 1999-2010 was satisfactory, while sensitivity was low.

86.00 PA057 The Role of Eating Disorders for Pregnancy, Neonatal Outcome and the Child's Early Development

Saloua Koubaa (1), Tore Hällström (1), Angelica Lindén Hirschberg (1), Lars Hagenäs (1)
(1) Department of Women's and Children's Health, Karolinska University Hospital, Sweden

Objective: To study serum biomarkers of nutrition and stress in early pregnancy of women with a previous history of anorexia nervosa (AN) or bulimia nervosa (BN) and controls in relation to head circumference and neurocognitive function of the offspring.
Method: Thirty-seven nulliparous non-smoking women with eating disorders (ED) before pregnancy (20 AN, 17 BN) and 59 controls participated in the study. Blood samples collected during early pregnancy for screening of infections were stored at the Karolinska biobank and remaining serum was used for analyses of ferritin, cortisol, thyroid-stimulating hormone, free thyroxine (T4), insulin, IGF-I and IGFBP1. Serum levels of these biomarkers were related to head circumference at birth and neurocognitive development investigated at five years of age of the offspring by the parent questionnaire Five to Fifteen.
Results: We previously reported retarded head growth and neurocognitive development in infants of mothers with a history of AN and BN. Serum levels of maternal ferritin in the AN group, but not in the BN group, were significantly lower ($p<0.05$) and correlated to impaired memory function in the children ($r_s=-0.70$, $p<0.001$). There were no other significant differences in the biomarkers investigated. However, maternal serum levels of free T4 were positively associated with head circumference at birth of the children in the BN group ($r=0.48$, $p<0.05$) with the same tendency in the AN group ($r=0.42$, $p=0.07$) but not in the controls ($r=0.006$).
Conclusion: Low maternal serum ferritin in the AN group, but not in the BN group, may be of importance for the development of impaired memory capacity in the offspring at five years of age. Maternal serum free T4 is related to reduced head circumference at birth of the offspring to mothers with previous ED.

413.00 PA058 CGRP potently relaxes isolated, ET1-preconstricted resistance arteries of term pregnant women

Karolina Kublickiene (3), Marius Kublickas (1), Piet Boel (1), Boel Niklasson (1), Felix Bohm (2)
(1) Dept. of OB/GYN, Karolinska University Hospital, Stockholm, Sweden
(2) Dept. of Cardiology, Karolinska University Hospital, Stockholm, Sweden
(3) CfG and Dept. of OB/GYN, Karolinska University Hospital, Stockholm, Sweden

The concentrations of the neuropeptide ***Calcitonin gene-related peptide*** (CGRP) increase during normal pregnancies; those of endothelin-1 (ET-1) during pre-eclamptic pregnancies. Therefore, the in vitro interactions between CGRP and ET-1 were investigated in isolated resistance-sized arteries (RSA) from subcutaneous fat of term pregnant, C-sectioned women. Noradrenaline (NA) and ET-1 isometrically contracted RSA with intact endothelium (presence of relaxations by Acetylcholine (ACh)).
Compared with ACh-relaxations from NA-contractions, ET-1 contractions potently attenuated ACh-relaxations by increasing ED_{50} and decreasing maximal relaxation (R_{max}). This attenuation was also observed for bradykinin, zaprinast and nitroprusside. Only CGRP and papaverine were resistant to the relaxation-attenuation effects of ET-1. RSA exposed for 90mins to low, non-relaxant concentrations of CGRP prior to addition of ET-1, had improved relaxations to ACh and nitroprusside, compared to those only exposed to Albumin followed by ET-1.
As both CGRP and papaverine are implied in increased intracellular cAMP, the authors propose that cAMP may aid in abrogating the long-term contracting and the relaxation-abrogating effects of ET-1. However, the relaxation-improving effects of low concentrations of CGRP point to other signal-transduction pathways, antagonising the ET1-effects and specifically activated by this peptide. In combination, these results may direct novel efforts for establishing a treatment for pre-eclampsia.

414.00 PA059 A multi-centre phase IIa clinical study to develop a predictive blood test for pre-eclampsia – IMproved PRegnancy Outcomes via Early Detection (the IMPROvED-study)

Boel Niklasson (1), Karolina Kublickiene (8), Marius Kublickas (1), Caroline van den Berg (2), Johannes Duvekot (2), Zarko Alfirevic (3), Shaughn O'Brien (4), Philip Baker (5), Christoph Berg (6), Berthold Grüttner (7)
(1) Dept. of OB/GYN, Karolinska University Hospital, Stockholm, Sweden
(2) Erasmus Medical Centre Rotterdam, Netherlands
(3) University of Liverpool, UK
(4) Keele University, UK
(5) University of Bonn, Germany University of Cologne, Germany
(6) University College Cork, Ireland
(7) CfG and Dept. of OB/GYN, Karolinska University Hospital, Stockholm, Sweden

Pre-eclampsia (PE) affects 5% first time pregnancies. It is the leading cause of maternal death in Europe and an important cause of foetal morbidity and mortality. PE is a complex disorder which requires a personalised medicine approach. To this day clinicians are unable to predict PE in early pregnancy and no clinical useful screening test exists.
The IMPROvED consortium is conducting a multicentre, phase IIa clinical study to develop a sensitive and specific predictive blood test for PE early in pregnancy. The target population of this blood test are healthy first time mothers. Prototype tests will be assessed based on proteomic and metabolomic technologies. 5000 women in 5 countries are under recruitment and maternal blood samples, urine and hair are collected at 11, 15, 20 and 34 weeks' gestation, and after delivery (≥6 month). Women are followed throughout their pregnancies and clinical outcomes are collected.
The development of a screening test for PE will enable clinicians to offer targeted surveillance or potential preventative strategies. If high risk patients can be distinguished from low risk patients targeted care can be applied. This may lead to significant health economic savings. Furthermore the IMPROvED consortium is establishing a high-calibre biobank which will be a valuable resource for future research in the prediction of other obstetric complications.
In this study an innovative prototype test to predict PE in early pregnancy will be assessed. The development of a screening test for PE would be an important step in providing personalised care to women with PE.

197.00 PA06 Swedish midwives' experiences of counselling pregnant women on physical activity – a qualitative study

Maria Lindqvist (1), Margareta Persson (2), Marie Lindkvist (3), Ingrid Mogren (4)
(1) Department of Clinical Sciences, Obstetrics and Gynecology, Umeå University, Sweden
(2) Dalarna University, School of Health and Social studies, Falun, Sweden
(3) Dpt of Statistics, Dpt of Public Health and Clinical Med. Umeå university,Sweden
(4) Department of Clinical Sciences, Obstetrics and Gynecology, Umeå University, Sweden

Background: The supportive role of the midwife in antenatal care (ANC) in Sweden is prominent, and counselling and promoting healthy lifestyle is a central issue. The aim of this study was to explore the experiences of counselling pregnant women on physical activity as narrated by midwives currently working in ANC.
Methods: Eight focus group discussions (FGD), including 41 midwives, were conducted in Sweden. Purposive sampling was applied aiming for variation in age, work experience and geographical location. The FGD were recorded, transcribed and analysed using manifest and latent content analysis.
Results: The main theme "Midwife counselling: an ongoing individual adjustment" included three categories: "Counselling as a challenge", "Counselling as walking the thin ice" and "Counselling as an opportunity". Counselling on physical activity was perceived multifaceted, such as encountering several sources of resistance to physical activity ("Counselling as a challenge"), exploring and promoting individual facilitators ("Counselling as an opportunity") and fear of risking the relationship with the pregnant woman when at the same time fulfilling demands and professional duties ("Counselling as walking the thin ice").
Conclusions: Counselling on physical activity and life style change may be perceived a challenge and is characterized by adjustments based on pregnant women's individual needs. Midwives strive to find individual solutions to encourage to physical activity. Counselling activities needs to be upgraded, which requires midwives' access to additional professional training and more time allocated for counselling in ANC. Such efforts might result in opportunities to further explore and support pregnant women's motivation for physical activity.

415.00 PA060 Small Artery Function in Women at Reproductive Age and with a History of Early-Onset Preeclampsia

Karolina Kublickiene (3), Gunilla Ajne (1), Marius Kublickas (1), Samsul Arefin (1), Henry Nisell (1), Sandra Davidge (2)
(1) Dept. of OB/GYN, Karolinska Univ Hospital, Stockholm, Sweden
(2) University of Alberta, Edmonton, Canada
(3) CfG and Dept. of OB/GYN, Karolinska Univ Hospital, Stockholm, Sweden

Women with a history of PE have an increased risk of CVD. We aimed to determine if the structure and function of peripheral resistance arteries are impaired in women without known vascular risk factors but with a history of severe early-onset PE. Such women (n=15) and controls that underwent a normal pregnancy (n=15) were studied ~2 years postpartum. Pressure myography was used for comparison of structure and function of isolated arteries and immunostaining for comparison of eNOS, LOX-1, TNF-α, PTX-3 and TWEAK expressions. Cases had higher blood pressure, insulin levels and HOMA index vs. controls. We found no evidence for early renal damage. The endothelium-dependent response to flow was attenuated in the case group and absence of NO contribution underlie an impaired response to flow. Dilatation to bradykinin, NO donor were similar between the groups. The myogenic tone was enhanced in arteries from cases and positively correlated with LDL/HDL ratio. The basal tone in the case group was positively correlated with LDL/HDL ratio, triglycerides, HbA1c, hsCRP and negatively correlated with HDL. Higher sensitivity to norepinephrine, angiotensin II and reduced distensibility were observed in cases. Distensibility was negatively correlated with homocysteine in the case group only. The arteries from both groups had similar diameters, wall thickness, wall–lumen ratio and crossed sectional area. Only LOX -1 expression was enhanced in case vs. control group. The observed changes will contribute to an increased peripheral resistance and blood pressure, which are of critical importance for long-term women's cardiovascular health.

416.00 PA061 Vasodilatory Effects of the Selective GPER Agonist G-1 is Maximal in Arteries of Postmenopausal Women

Samsul Arefin (1), Tommaso Simoncini (4), Marius Kublickas (1), Piet Boel (1), Folke Hammarqvist (2), Stefania Spina (4), Lorenzo Goglia (4), Karolina Kublickiene (3)
(1) Dept. of OB/GYN, Karolinska Univ Hospital, Stockholm, Sweden
(2) Div of Surgery, Karolinska Univ Hospital, Stockholm, Sweden
(3) CfG and Dept. of OB/GYN, Karolinska Univ Hospital Stockholm, Sweden
(4) Dept. of OB/GYN, University of Pisa, Pisa, Italy

G-protein-coupled estrogen receptors (GPERs) have been proposed to mediate estrogen-mediated vasodilation. The presence of GPER-dependent vasodilation in human resistance-sized arteries (HRAs) or its signal transduction pathways have not been investigated. HRAs in subcutaneous fat tissues (biopsies from postmenopausal women (PMW), age-matched men (M) and pregnant women (PGW)) were mounted for in vitro isometric force recording. Vasodilation induced by G-1 (selective GPER- agonist, 3μM) from HRAs pre-contracted with norepinephrine amounted to 40±5% in PMW, significantly larger than those obtained from M (20±5%) or PGW (20±5%). L-NAME (nitric oxide (NO) synthase inhibitor) abolished these relaxations in PGW, attenuated them in PMW and had no effect in M. Immunohistochemical analysis confirmed the presence of GPER in both smooth muscle and endothelial cells of HRA with maximum expression in PGW. In cultured human umbilical vein endothelial cells (HUVECs), G-1 increased NO-synthesis concentration-dependently through higher expressions of endothelial NO-synthase (eNOS) and through enhanced phosphorylation of eNOS on Ser^{1177}. In conclusion, GPER vasodilates human resistance arteries through various activating mechanisms of the eNOS-signaling pathway.

226.00 PA062 Transvaginal sonographic evaluation of the cervix in second trimester in asymptomatic singleton pregnancy and the risk of preterm delivery (PTD)

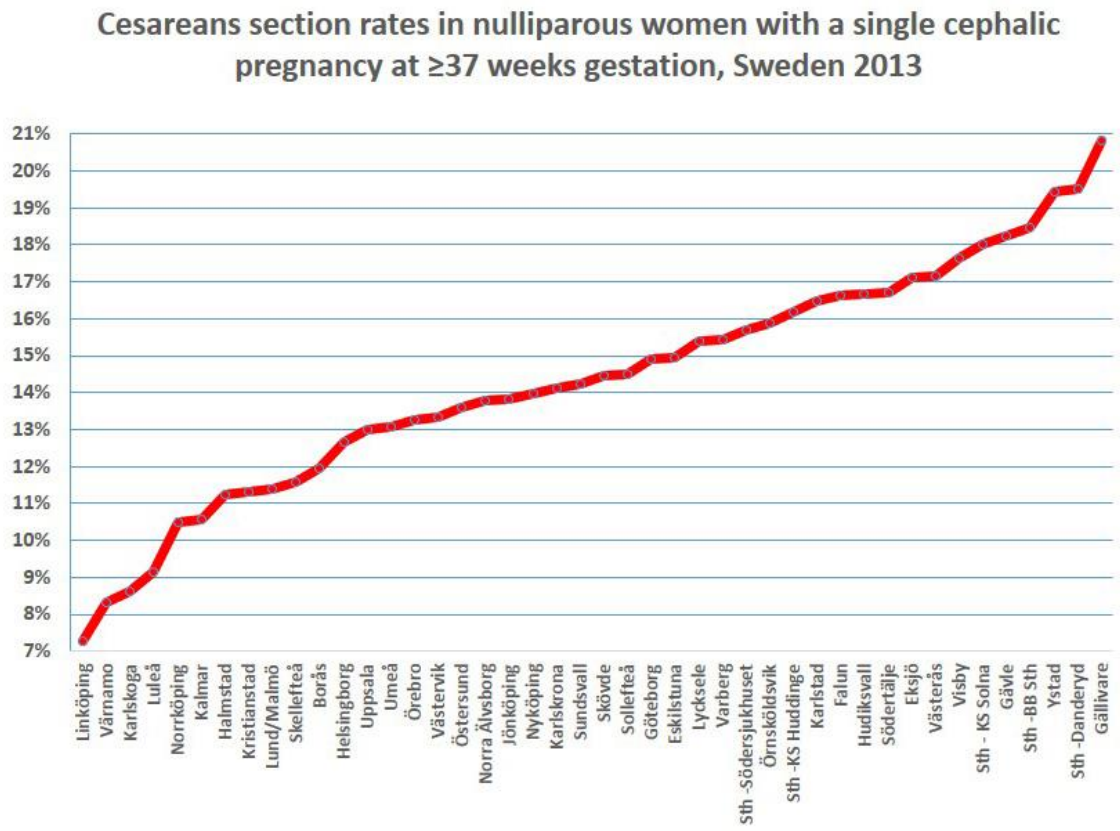
Pihla Kuusela (1), Bo Jacobsson (1), Henrik Hagberg (1), Mona Söderlund (3), Carina Bejlum (2), Elisabeth Almström (2), Ulla-Britt Wennerholm (1)
(1) Institute of Clinical Sciences, Sahlgrenska Academy, Gothenburg, Sweden
(2) Departement of obstetrics, Norra Älvsborg County Hospital, Trollhättan, Sweden
(3) Departement of obstetrics, Sahlgrenska University Hospital, Gothenburg, Sweden

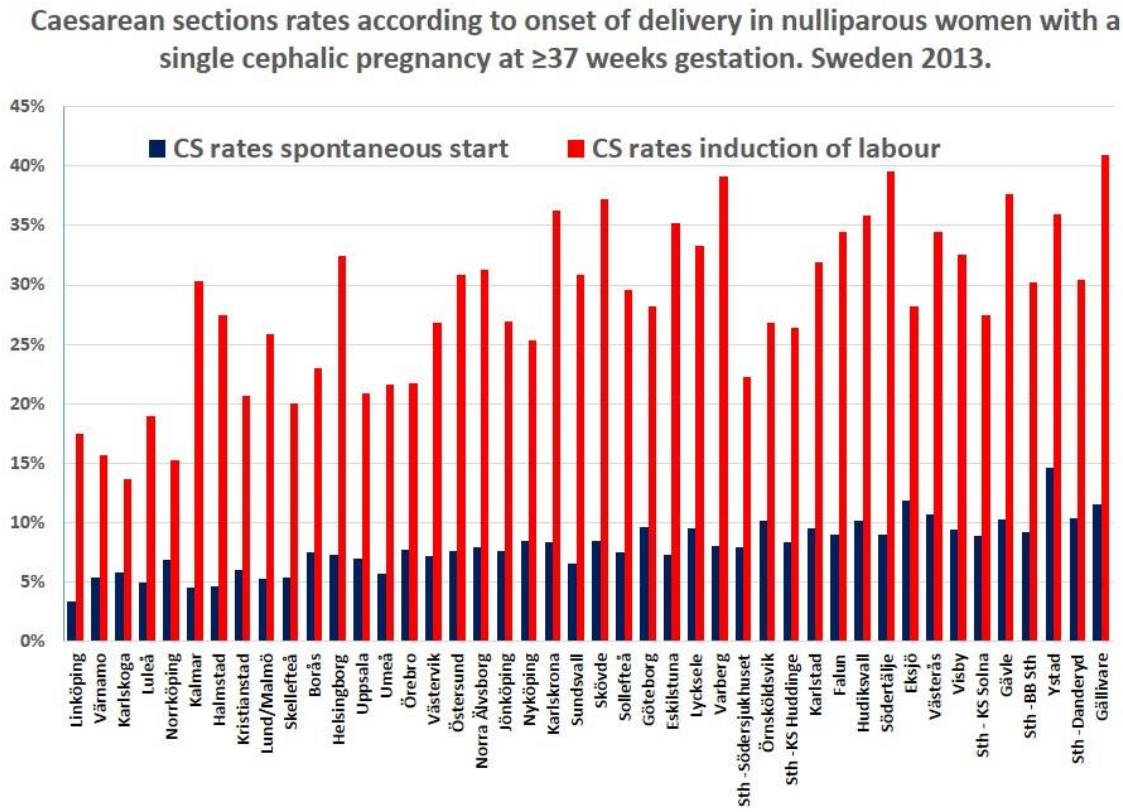
Background
A sonographic short cervix has been shown to predict PTD. Most studies have been performed in countries with higher prevalence of PTD than in the Nordic countries.
Aims
To measure the cervical length with transvaginal ultrasonography in asymptomatic women with a singleton pregnancy in the second trimester. To evaluate the cervical length for prediction of spontaneous PTD.
Methods
Women attending for a routine abdominal ultrasound examination at Sahlgrenska University Hospital, Göteborg and Norra Älvsborg County Hospital in Trollhättan, Sweden were offered a transvaginal scan to measure the cervical length. Examinations were performed by trained midwives. Three measurements were performed of cervix in sagittal view, and the shortest measurement was recorded
Results
2028 women were examined at 16-23 weeks' gestation during 2012 - 2013. Data on demographics and pregnancy outcome was available for 1764 women. Mean age was 31.2 years, mean BMI 24.1 and 50.9% were primiparous. Median cervical length was 39.0 mm (range 21-70 mm) Eight women had cervical length ≤25 mm (0.5%) and 71 women cervical length ≤30 mm (4.0%). Spontaneous PTD <37 weeks occurred in 4.0%, <34 weeks in 1.1% and <28 weeks in 0.5%. The median cervical length was 36 mm (26-57 mm) in women with a spontaneous PTD <37 weeks and 39 (21-70 mm) in women with a delivery ≥37 weeks (p=0.007).
Conclusions
We found a much lower rate (0,5%) of cervix ≤ 25 mm than expected (2,3-10% in non-nordic studies). A larger study is needed to evaluate the prevalence of short cervix and risk for PTD in Sweden.

435.00 PA063 Obstetrical results from 44 Swedish hospitals 2013 using the Robson ten group classification.

Lars Ladfors (1)
(1) Department of Obstetrics and Gynecology Sahlgrenska University Hospital Göteborg

National results were collected from all Swedish delivery wards (except Växjö, due to problems to get data from the database). All the deliveries were classified according to the ten group classification proposed by Mike Robson. The lowest rate of overall Caesarean section (CS) was 11.4% (Luleå) and the highest was 23.2% (Danderyd, Stockholm). The most important group if you want to minimize the CS-rate is nulliparous women with a single cephalic pregnancy at >37 weeks gestation. The variation in CS rate was from 7% in Linköping to 20% in Danderyd Stockholm. The difference in CS rate in this group was significant OR=3.1 (95% CI 2.4, 4.0).
The induction rate in nulliparous women with a single cephalic pregnancy at >37 weeks gestation varied between 10% (Karlskoga), 15% (Helsingborg) and 29% (Karolinska University Hospital Solna, Stockholm). The CS rate was raised in inductions compared to spontaneous start of labour. Calculating on all the 44 hospitals there was a raised risk for a CS after induction of labour, Odds ratio= 3.1 (95% CI 2.4, 4.0).
To continuous monitor the results in the obstetrical wards **and** that the hospitals with improvement opportunities are interested in focusing on continuous quality improvement is vital for keeping a high standard in obstetrics.
Reducing unwarranted practice variation is important where it influences health outcomes, health care costs, and provision of appropriate and patient focused care.




Caesarean sections rates according to onset of delivery in nulliparous women with a single cephalic pregnancy at ≥37 weeks gestation. Sweden 2013.
CS rates spontaneous start
CS rates induction of labour
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Linköping
Värnamo
Karlskoga
Luleå
Norrköping
Kalmar
Halmstad
Kristianstad
Lund/Malmö
Skellefteå
Borås
Helsingborg
Uppsala
Umeå
Örebro
Västervik
Östersund
Norra Älvsborg
Jönköping
Nyköping
Karlskrona
Sundsvall
Skövde
Sollefteå
Göteborg
Eskilstuna
Lycksele
Varberg
Sth -Södersjukhuset
Örnsköldsvik
Sth -KS Huddinge
Karlstad
Falun
Hudiksvall
Södertälje
Eksjö
Västerås
Visby
Sth - KS Solna
Gävle
Sth -BB Sth
Ystad
Sth -Danderyd
Gällivare

430.00 PA064 Perinatal outcomes in children born by women induced by misoprostol versus oxytocin. A national assessment.

Øjvind Lidegaard (1), Mette Hedegaard (1), Charlotte W Skovlund (1), Lina S Mørch (1), Morten Hedegaard (2)
(1) Dept. of Gynaecology, Rigshospitalet, University of Copenhagen
(2) Dept. of Obstetrics, Rigshospitalet, University of Copenhagen

Background. It has been questioned whether induction of deliveries with prostaglandin is as safe as induction with oxytocin. The aim of this study was to assess perinatal data in children born by women induced by either oxytocin or prostaglandin from 40 gestational weeks.
Design. A historical national cohort study 2000-2012 .
Methods. Through the study period we followed all Danish pregnant women. Perinatal outcomes among children born after induction with prostaglandin and oxytocin, respectively, were assessed by logistic regression with control for maternal age, year, and gestational age at delivery.
Results. The relative risk of outcomes among 42,398 children born after prostaglandin induction as compared with 8,835 children born after oxytocin induction from 40 weeks were for neonatal death 1.2 (0.6-2.4), neonatal severe asphyxia diagnosis 0.8 (0.7-1.0), umbilical artery pH <7 had an overall rate ratio of 1.6 (1.1-2.4), decreasing through the study period from 2.2 to 1.2, Apgar score <7 at five minutes 1.0 (0.5-1.8), cerebral palsy 1.0 (0.5-1.8), brain damage 1.0 (0.6-1.7), and for admission to neonatal intensive care unit 1.2 (1.0-1.5).
Interpretation. The equal frequency of neonatal death, asphyxia, low Apgar score, brain damage and referral to neonatal intensive care unit suggests no higher risk of adverse neonatal outcomes after misoprostol than after oxytocin induction. The decreasing rate ratio of low pH by time may be a consequence of reducing the induction dose of misoprostol by time.

125.00 PA065 Routine ultrasound examination at 41 weeks of gestation and risk of postterm severe adverse fetal outcome: A retrospective evaluation of two units, within the same hospital, with different guidelines

Pelle G Lindqvist (1), Karin Pettersson (2), Annica Morén (2), Marius Kublickas (2), Lennart Nordström (3)
(1) Dept Obstetrics & Gynecol, Clintec, Karolinska Institute,
(2) Dept Obstetrics & Gynecol, Karolinska University Hospital, Huddinge
(3) Dept Obstetrics & Gynecol, Karolinska University Hospital, Solna

Objective**:** To study if a routine with a routine 41 gestational week ultrasound examination (routine scan), as compared to ultrasound on clinical indication (indicated scan), lowered the risk of severe adverse fetal outcome in postterm period
Design: A retrospective cohort study
Setting**:** Karolinska University Hospital, Stockholm, Sweden
Population: Eight years of deliveries, 2002 to 2009
Method: One of the two delivery units at Karolinska University Hospital used routine scan at 41 week of gestation, while the other use indicated scan. Severe adverse fetal outcome was defined as; severe asphyxia, death, or cerebral damage. The study was analyzed using logistic regression with adjustment for potential confounders.
Main outcome measure: Differences in postterm severe adverse fetal outcome
Results: No increased risk of postterm severe adverse fetal outcome was seen at the unit using routine scan; conversely, a 48% significantly increased risk was seen at the unit using indicated scan (OR 0.89, 95% CI 0.5–1.5 and OR 1.48, 95% CI 1.06–2.1, respectively). In comparing postterm periods, there was no significantly increased risk at the unit using indicated scan (OR = 1.6, 95% CI 0.9–3.0). There was a 60% increased prevalence of small-for-gestational age (SGA) newborn in the postterm period at the unit using indicated scan (OR 1.6 1.1–2.4), but no differences in operative delivery.
Conclusion: A policy to use routine scan at 41 gestational weeks seems to normalize an increased postterm risk of severe adverse fetal outcome, possible due to increased awareness of SGA and/or oligohydramniosis.

60.00 PA067 Pregnancy and perinatal outcomes in women with polycystic ovary syndrome and twin births - a population based cohort study

Tone Loevvik (1,2), Nathalie Roos (3,4), Olof Stephansson (3,4), Anna Karin Wikström (3,5), Martin Neovius (3), Eszter Vanky (1,2)
(1) Institute of Laboratory Medicine, Children's and Women's Health, Norwegian University
(2) Department of Obstetrics and Gynecology, St. Olavs Hospital, Trondheim, Norway
(3) Department of Medicine, Solna, Clinical Epidemiology Unit, Karolinska Institute, Sweden
(4) Department of Women's and Children's Health, Division of Obstetrics and Gynecology, Karolinska Institute, Sweden
(5) Department of Women's and Children's Health, Uppsala University, Uppsala, Sweden

Objective: To investigate pregnancy and perinatal outcomes in twin births among women with and without polycystic ovary syndrome (PCOS) diagnosis.
Methods: A total of 20,965 women with twin births were identified in the Swedish Medical Birth Register between 1995 and 2009. Through linkage with the Swedish National Patient Register we identified 226 women diagnosed with PCOS. Using logistic regression analysis, we calculated odds ratios (OR) with 95% confidence intervals (CI) for preterm birth, caesarean section, low birth weight, preeclampsia, Apgar score < 7 at 5 minutes and perinatal mortality in women with twin pregnancies and PCOS diagnosis. Women without PCOS diagnosis were used as reference.
Results:
Having a PCOS diagnosis in twin pregnancy was associated with increased risk of preterm delivery (51.3% *vs* 42.9%, adjusted OR 1.4 (95% CI:1.0-1.9, P=0.02)), particularly spontaneous preterm delivery (36.9% *vs* 27.8%; adjusted OR 1.5 (95% CI:1.1-2.1, P=0.007)). The risk for Cesarean section was increased in the PCOS group (58.9% *vs* 49.7%, adjusted OR 1.3;(95% CI: 1.0-1.8, P=0.05)). Twins born to mothers with PCOS had more often low birth weight (47.7% *vs* 39.3%, adjusted OR 1.4 (95% CI:1.1-1.8, P=0.006)). This difference disappeared when adjusting for gestational length at birth. No difference in risk was found between the groups for preeclampsia, Apgar score or perinatal death.
Conclusions: The increased risk of preterm delivery and Cesarean section in twin pregnancies is further increased by having PCOS diagnosis. This should be considered in the risk estimation and follow-up of twin pregnancies in mothers with PCOS diagnosis

126.00 PA070 Criterion-based audit: Indications for emergency cesareans in Tanzania

Nanna Maaløe (1), Ib Christian Bygbjerg (2), Rwakyendela Onesmo (3), Niels Jørgen Secher (4), Bjarke Lund Sørensen (5)
(1) Dept. of Gynecology and Obstetrics, Hvidovre University Hospital, Denmark
(2) Dept. of Int. Health, Immunology, and Microbiology, University of Copenhagen, Denmark
(3) Sekou-Toure Regional Hospital, Mwanza, Tanzania
(4) The Juliane Marie Centre, Copenhagen University Hospital, Rigshospitalet, Denmark
(5) Dept. of Gynecology and Obstetrics, Roskilde University Hospital, Denmark

OBJECTIVE: To establish evidence-based realistic audit criteria on indications for emergency cesarean sections (EmCSs) and investigate in depth to what extent they were followed.
DESIGN: Retrospective criterion-based audit.
SETTING: Two Tanzanian rural hospitals.
POPULATION: From 2009, 400 cesarean section (CS) instances were extracted, of which 303 were EmCSs and therefore included.
METHODS: Audit criteria on CS indications were established by literature survey (Table 1). In the included cases, indications for and management preceding EmCSs were compared with the criteria.
RESULTS: Of the EmCSs, 26% appeared to be decided based on inappropriate indications, and in an additional 38%, the indications were unclear. Prolonged labor was the leading indication; in 36% of these, labor progressed timely and/or membranes were still intact. In 26%, previous CS was the indication, half of these with one previous CS only. Fetal distress was an indication in 14%, but for 84% of these fetal heart rate was reassuring or not documented. In 3%, EmCS was decided upon because of intrauterine fetal death; none had a trial of forceps/vacuum extraction or destructive surgery.
CONCLUSION: A considerable number of EmCSs were performed on doubtful indications. In the light of the rising trend in global CS rates, there seems to be a need to ensure quality management preceding CSs. This is particularly called for in sub-Saharan Africa where CS rates are still low and health risks of emergency surgery not negligible.
REFERENCE: Maaløe N, Bygbjerg IC, Onesmo R, Secher NJ, Sorensen BL. Acta Obstet Gynecol Scand 2012; 91:1069–1076.

Title for the uploaded Table 1:
Summary of absolute and relative medical indications for cesarean sections, based on existing evidence-based guidelines. Reference: Maaløe N, Bygbjerg IC, Onesmo R, Secher NJ, Sorensen BL. Acta Obstet Gynecol Scand 2012; 91:1069–1076.

	Fetal	Maternal–fetal	Maternal
Absolute indications for CS	• Transverse lie • Oblique lie • Face mentoposterior presentation • Brow presentation • Twins if first twin is breech • Footling breech • Shoulder presentation	• True cephalopelvic disproportion[a] • Placenta previa • Uterine rupture (laparotomy) • Prolonged first stage of active phase of labor[b] • Conjoined twins	• 2 times previous lower segment CS (or once classic corporal CS) • Other medical conditions (e.g. cardiac, pulmonary, central nervous system) • Obstructive tumors • Previous reconstructive vaginal surgery (e.g. fistula repair) • Contracted pelvis • Abdominal cerclage
Absolute indications for either IVD or CS	• Fetal distress/non-reassuring fetal heart rate[c] • Cord prolapse with pulsating cord	• Prolonged second stage of active phase of labor[b] • Placental abruption (big bleeding)	• Severe preeclampsia or eclampsia[d]
Relative indications for CS	• Breech (except for footling breech) • HIV • Congenital anomalies • Active herpes virus • Perimortem (after maternal death)		• Intrauterine fetal death[e]

[a]Criteria for applying true cephalopelvic disproportion as indication for CS:
- True cephalopelvic disproportion can only be diagnosed before active labor if there is a grossly abnormal pelvis or obvious fetal hydrocephalus. In all other situations, a trial of labor is mandatory, and the diagnosis will be set retrospectively after CS performed due to obstructed labor.

[b]Criteria for applying prolonged labor/dystocia as indication for CS:
- In first stage of active phase (arrest of cervical dilation): after ruptured membranes, crossed action line, and oxytocin augmentation (oxytocin if <3 contractions/10 min and each contraction lasting <40 s).
- In second stage of active phase (arrest of fetal descent): after 1 h/2 h (multi-/primigravida) of fully dilated cervix, ruptured membranes and oxytocin augmentation (oxytocin if <3 contractions/10 min and each contraction lasting <40 s).

[c]Criteria for applying fetal distress as indication for CS:
- Fetal distress/non-reassuring fetal heart rate: FHR <100 or >180 beats/min.

[d]Criteria for applying severe preeclampsia or eclampsia as indication for CS:
- If vaginal delivery is not feasible within 24 or 12 h, respectively, or if the woman's condition is unstable.

[e]Criteria for applying intrauterine fetal death as indication for CS:
- CS only if severe maternal compromise after failed induction/augmentation and failed craniotomy.

Contradictions for CS:
- If the mother is medically unstable, it is recommended that the maternal condition be stabilized first, and delivery considered only for obstetric indications.

CS, cesarean section; FHR, fetal heart rate; IVD, instrumental vaginal delivery.

38.00 PA071 The size of the labor wards: Is bigger better when it comes to patient safety?

Maria Milland (1), Jens Krogh Christoffersen (2), Morten Hedegaard (1)
(1) Rigshospitalet, Department of Obstetrics, Copenhagen, Denmark
(2) The Danish Patient Insurance Association, Copenhagen, Denmark

OBJECTIVE: To assess possible associations between the size of labor units and the frequency of approved obstetric claims.
DESIGN: A nationwide retrospective descriptive study.
SETTING*:* Denmark.
POPULATION: All patients seeking financial compensation due to obstetric injuries occurring between 1995 and 2009.
METHODS: In all, 1440 anonymized obstetrics claims were reviewed; 1326 were included in the study. Information regarding the annual number of deliveries for each place of injury was retrieved from the National Birth Registry.
MAIN OUTCOME MEASURES: Obstetric injuries approved by the Danish Patient Insurance Association categorized by labor unit size.
RESULTS: The overall approval rate for submitted claims was 39.7%. Large labor units (3000-3999 deliveries/year) were found to have a lower approval rate (34.2%), compared to very large (≥4000 deliveries/year, 38.6%), intermediate (1000-2999 deliveries/year, 41.7%), and small units (<1000 deliveries/year, 50.0%), (p <0.05). The majority of compensation claims were approved with reference to the "specialist rule", assuming that if an experienced specialist had conducted the treatment differently the injury could have been avoided. Claims from small units showed a trend for being more often based on the specialist rule than seen in larger units (p<0.05, test for trend).
CONCLUSION: The results may reflect that large labor units are living up to the principle of best practice to a greater degree. Several factors can be linked to the size of the labor unit and a better availability of in-house obstetricians as well as auxiliary specialists could be part of the explanation.

344.00 PA072 Near miss audits reveal the impact of unnecessary cesarean, substandard care and migration on women's health in Tehran, Iran.

Soheila Mohammadi (1), Carina Källestål (1), Masoumeh Fallahian (2), Robabeh Taheripanah (2), Soraya Saleh (2), Birgitta Essén (1)
(1) Women and Children's Health Department, IMCH, Uppsala University
(2) Infertility Reproductive Health Research Center, SBM University

Background Cesarean section (CS) has alarmingly increased in Iran despite evidence shows correlation between CS and adverse maternal outcomes. In Tehran, the growing trend is even higher (CS rates 2009: 74%) without morbidity and quality surveillance.
As maternal near miss (MNM) has become a standard tool to examine quality of obstetric care, this study aims at auditing MNM to evaluate morbidities in relation to mode of delivery and assess the quality of maternity care to improve safe motherhood.

Methods A prospective multicenter study has been carried out for 20 months in 3 university hospitals. MNM were identified based on organ dysfunction criteria. Audit team analyzed care performance using CBCA, case note reviews, and interviews with some of the mothers. Auditors reached consensus about standard of care per case.

Results In total we found 60 MNM and 11 maternal deaths giving 6.4 MNM per 1000 live births. HELLP syndrome and post partum hemorrhage were the two main causes of MNM. 68% of mothers arrived hospitals in critical condition. Almost 80% of cases delivered by CS of which more than one third was either not indicated or the necessity was in doubt. Severe adverse outcome was 2.6 times more common in Afghan mothers. Almost 80% of mothers received suboptimal care at hospitals.

Conclusion Unnecessary CS contributes in developing MNM. Audit findings indicate inappropriate obstetric practice and susceptibility of Afghan refuges for severe outcomes. Attentions of health care managers, policy makers, and government officials are needed if maternal health is on target.

298.00 PA073 Implementation of Improvement work at the delivery ward according to the national Perinatal Program in Denmark.

Louise Munk (1), Mette Olivia Larson (1), Mariette Birgitte da Cunha Bang (1), Ingeborg Christina Rørbye Lundin (1), Charlotte Wilken-Jensen (1), Anette Kjærbye-Thygesen (1), Carina Jørgensen (1), Rikke Hollesen (2)
(1) Dep. of. Gynaecology and Obstetrics, Hvidovre Hospital, Copenhagen, Denmark
(2) Danish Society of Patient Safety

Background
The Perinatal Safety Program is based on studies of compensation claims in Denmark with focus on birth processes and with the purpose to reduce incidence of asphyxia.
Aim
The aim was to implement bundles of care as described in the Perinatal Safety Program thereby improving communication, teamwork and focus on risk factors during labor.
Materials and methods
The bundles of care were set by the steering committee of the project. It included bundles for “Check-in”, “Time-out”, oxytocin drip and instrumental deliveries.
The improvement work at Hvidovre Hospital began in January 2013 and was carried out by an interdisciplinary improvement team. The main strategy was Model for Improvement with rapid Plan-Do-Study-Act (PDSA) cycles.
The change concept was standardization of the work processes by checklists.
PDSA tests of e.g.

- whiteboard with Check-in information bedside
- a standard delivery checklist in the medical record
- new workflow process for hand over at bedside
- a pocket card listing notes of the bundles of care including risk factors

Five random samples of each bundle were checked daily or weekly and feed- back was given directly to the involved staff.
Results
In more than 95% of the deliveries, Check-in and Time-out was fully implemented. The bundles for oxytocin drip and instrumental deliveries were implemented in 80 % of the samples.
Conclusion
The delivery checklist was successfully implemented by using PDSA, feed-back and standard checklists. There is still room for improvement in the bundles regarding instrumental deliveries and oxytocin drip.

269.00 PA074 Hypoxic ischemic encephalopathy in newborns linked to placental and umbilical cord abnormalities

Josefine Nasiell (1), Nikos Papadogiannakis (2), Erika Löf (1), Fanny Elofsson (1), Boubou Hallberg (3)
(1) Department of CLINTEC division of obstetrics, Stockholm, Sweden
(2) Department of Laboratory medicine, division of pathology, Stockholm, Sweden
(3) Department of CLINTEC division of neonatolgy, Stockholm, Sweden

Objective: Birth asphyxia and hypoxic ischemic encephalopathy of the newborn remains a serious complication. We present the first study investigating if placental or umbilical cord abnormalities in newborns at term are associated with hypoxic ischemic encephalopathy Materials and Methods: A prospective cohort study of the placenta and umbilical cord of infants treated with hypothermia due to hypoxic brain injury and follow-up at 12 months of age.The study population included 41 infants treated for hypothermia whose placentas were submitted for histopathological analysis. Main outcome measures were infant development at 12 months, classified as normal, cerebral palsy, or death. A healthy group of 100 infants without hypoxic ischemic encephalopathy and normal follow up at 12 months of age were used as controls.
Results: A velamentous or marginal umbilical cord insertion was strongly associated with the risk of severe HIE. It was found in 33% (n = 13) of HIE infants with poor outcomes (CP and death) and in 44% (n = 18) of HIE infants with good outcomes (normal development) compared to 7% (n = 100) in healthy controls,
Conclusions: Placental and umbilical cord abnormalities have a profound association to newborns with hypoxic ischemic encephalopathy. We recommend determining umbilical cord insertion at a routine pregnancy examination in the mid-trimester. A prompt examination of the placentas of newborns suffering from asphyxia can also provide important information on the pathogenesis behind the incident and contribute to the infant's prognosis.

275.00 PA075 Effects and consequences for mother and child treating depression: a randomized controlled trial with internet-based cognitive behaviour therapy and selective serotonin uptake inhibitor or placebo

Barbara Szymanska von Schultz (1), Josefine Nasiell (1), Margareta Blomdahl (3), Marie Bendix (3), Jussi Jokinen (3), Katarina Wide (2), Karin Börjesson (1), Lars Gustafsson (4), Mats Blennow (2)
(1) Department of CLINTEC division of obstetrics, Stockholm, Sweden
(2) Department of CLINTEC division of pediatrics, Stockholm, Sweden
(3) Department of clinical neuroscience division of psychiatry, Stockholm Sweden
(4) Department of Laboratory medicine, division of clinical pharmacology

Depression is common in pregnant women, 5 % of all pregnant women need treatment, usually with selective serotonin reuptake inhibitors (SSRI). Increased risks for preterm birth and neonatal complications in the children are reported. Data on long-term effects on neurodevelopment in the children are contradictory. The risk of SSRI treatment versus risk of the depression on fetal development in the longer term is not well understood. Internet-based CBT (I-CBT) is an effective treatment option for depression. There are no studies on I-CBT treatment in pregnant women.
Aims: To study:

- neonatal effects and long-term neurodevelopment in children exposed to SSRI treatment during fetal life
- effects of a combined treatment with I-CBT and either SSRI or placebo in pregnant women with depression

Methods: Two-hundred women will be prospectively recruited from maternal antenatal health clinics in early pregnancy fulfilling the criteria of a moderately severe depression will receive I-CBT and at the same time be randomized to add-on therapy with the SSRI drug sertraline (n=100) or placebo (n=100). The children (n=200) will be assessed for neonatal neurological signs and complications and at 3m of age, for neurodevelopment at 2 and 6 years of age. Questionnaires on child behaviour, maternal attachment and psycho-social situation are evaluated at each follow-up. **Significance**: A randomized clinical trial enables evaluation of I-CBT and add on effect of SSRI during pregnancy. This study gives a unique opportunity to clarify the potential effects on neurodevelopment in two cohorts of children where the only difference is exposure to sertraline.

392.00 PA076 Severe maternal disease - what conditions are most dangerous concerning mortality risk for infant?

Anna von Vultée (1), Leif Svensson (2), Josefine Nasiell (1)
(1) Department of CLINTEC division of obstetrics, Karolinska,Stockholm, Sweden
(2) Department of Clinical resarch division of cardiology, South hospital, Sweden

Objective To study infant mortality in relation to maternal disease and conditions.
Design A retrospective cohort study.
Setting Sweden.
Sample All infants born to a mother treated for one diagnose from the inpatient hospital registry during 2001-2011.
Methods Swedish medical birth registry, hospital registry and death registry were combined
Statistics Logistic regression analysis.
Main outcome measures Infant dead within 1 week, 1 month or within 1 year after birth.
Results Maternal chock p=0 OR 19.4 CI (4.4-85.6), uterine rupture p=0 OR 11.3 CI (6.2-20.6), venous thrombosis p=0.012 OR 3.6 CI (1, 3-10.0) and sepsis p= 0.026 OR 1.6 CI (1.05-2.4). The results were the same for 1 week, 1 month and 1 year mortality.
Conclusion The infant mortality risk is substantially increased if the mother suffers from chock, uterine rupture, venous embolism or sepsis.

106.00 PA077 Oxycodone for postoperative pain control after Cesarean section: a randomized open parallel group study

Boel Niklasson (1, 2, 4), Catarina Arnelo (1), Susanne Georgsson Öhman (4,5), Märta Segerdahl (3), Agneta Blanck (1,2)
(1) Dept. of Obstetrics and Gynecology, Karolinska University Hospital, Stockholm
(2) Dept. of Clinical Science, Intervention and Technology, Karolinska Institute, Stockholm, Sweden
(3) Dep. of Physiology and Pharmacology, Karolinska Institute, Stockholm, Sweden
(4) Sophiahemmet University, Stockholm, Sweden
(5) Dept. of Women's and Children's Health, Karolinska Institute, Stockholm, Sweden

There has recently been an increased concern regarding the safety of codeine in breast-feeding mothers and children below age 12. The main aim of the study was to investigate whether oral oxycodone (OXY) is a better or equally safe management for postoperative pain relief after Cesarean section (CS) compared with intravenous morphine (IVM) followed by oral codeine. In a *r*andomized open parallel group study at *Karolinska U*niversity Hospital, 80 women (40+40) scheduled for elective CS were recruited. *The OXY* group received extended release tablets and short acting OXY as needed. The IVM group received iv morphine as needed followed by codeine (standard care). *All patients received a multimodal therapy including ibuprofen and paracetamol.* Opioid treatment was ended at the latest five days postoperatively. Safety for mothers and newborns, opioid requirements, pain intensity (Numerical Rating Scale NRS 0-10), plasma levels of OXY in mothers and newborns as well as levels in breast milk were investigated. Significantly lower break-through pain intensity was reported during the first 24 hours OXY group [mean 5.41 (SD 2.17) compared to 6.42 (1.61) in IVM]. Opioid consumption in OXY equivalents was significantly lower ($p \leq 0.05$) in the OXY group than in the IVM group 0-5 days postoperatively [111.5 (33.5) compared to 141.8 (39.7)]. No adverse effects in the newborns related to opioid treatment were observed in either group. A significantly better wellbeing post-operatively was reported in the OXY group. ***Conclusions*** A moderate dose of oral OXY is a safe and efficacious postoperative pain treatment after Cesarean section.

362.00 PA078 Duration of labour and risk of severe postpartum haemorrhage

Lill Trine Nyfløt (1,2), Siri Vangen (2), Babill Stray-Pedersen (2,3), Iqbal Al-Zirqi (2), Anne Flem Jacobsen (2), Margit Rosenberg (1)
(1) Dept. of Obstetrics, Drammen Hospital, Veste Viken HF
(2) Dept. of Obstetrics, OUS HF
(3) University of Oslo

Objective: To assess the association between the duration of labour and severe postpartum haemorrhage (SPPH) in women with intended vaginal deliveries.
Method: The study was a clinical case-control study investigating causes and predictors of severe bleeding at birth (≥1500 ml or blood transfusion) during 2008-2011in three hospitals in the South-East health region of Norway. The total number of deliveries was 43121. Duration of labour was defined from the start of the partogram until the baby was delivered and was divided into 4 quartiles. Information about potential risk factors were collected from the medical records. The association between duration of labour and SSPH was analysed in a multivariable logistic regression model.
Results: We included 859 women with SPPH and 1755 controls. A significant trend was seen with increasing duration of labour (P-value < 0.0001). High risk of SPPH occurred when the labour lasted ≥ 445 minutes (4^{th} quartile) (OR 2.70; 95% CI: 2.13-3.42). After adjusting for confounding factors, the risk of SPPH remained slightly increased (OR 1.3; 95% CI: 1.03-1.64). However, in stratified analyses, duration of labour was still a strong risk factor (OR 2.8; 95% CI: 1.29-5.91) when coexisting with obesity.
Conclusion: Duration of labour was associated with severe postpartum haemorrhage in our study, especially in obese women.

243.00 PA080 Changes in Semen Profile: Is this evolution?

Purusotam Basnet (1,2), Sissel A. Hansen (1), Inger K. Olaussen (1), Martha A. Hentemann (1,2), Ganesh Acharya (1,2)
(1) IVF Unit, Department of Obstetrics and Gynecology, University Hospital of North Norway, Tromso, Norway
(2) Women's Health and Perinatology Research Group, Department of Clinical Medicine

Background: Fertility is essential for the healthy population growth in the society. One of the vital determinants of fertility rate is the semen quality. Therefore, the trend of such parameter of public health importance needs to be assessed regularly.

Methods: Semen analysis data of 5739 North Norwegian men who attended the University Hospital of North Norway, Tromsø for fertility treatment from 1993 to 2012 were evaluated.

Results: We found a gradually decreasing trend in the seminal fluid volume, sperm concentration and total sperm count during the past 20 years. The percentage of hypospermic, azoospermic and oligozoospermic men was significantly high by 24.6% (p<0.001), 109.5% (p<0.001) and 9.5% (p=0.05), respectively in the last decade (2003-2012) compared to the previous decade (1993-2002).

Conclusion: Semen quality of men seeking fertility treatment is progressively declining in North Norway. Environmental toxins, changes in food habit, drinks (alcohol, coffee, soda), smoking, electronic gadgets (mobile phone, computer, Wi-Fi) etc, has been suggested as possible factors. As similar trend has been reported from other parts of the world, evolutionary mechanisms might also be involved. The cause of semen quality deterioration remains to be identified.

254.00 PA081 Fertility treatment and child intelligence, attention, and executive function

Bjørn Bay (1, 2), Erik L Mortensen (3), Ulrik S Kesmodel (2)
(1) School of Public Health, Section of Epidemiology, Aarhus University, Denmark
(2) The Fertility Clinic, Aarhus University Hospital, Denmark
(3) Institute of Public Health, University of Copenhagen, Denmark

Fertility treatment has been associated with obstetrical and perinatal complications. It is, however, still unclear if fertility treatment or parental subfertility is associated with long-term development of the children. We estimated the association between fertility treatment and subfertility and child intelligence, attention, and executive functions in 5-year-old singletons. The follow-up study included 1782 children tested with a neuropsychological battery and included extensive information on important covariates. The analyses were conducted using multiple linear regression and were adjusted for parental educational level, maternal intelligence, age, parity, body mass index, smoking in pregnancy, alcohol consumption in pregnancy and child gender, child age, and the testing psychologist. Compared with children born after spontaneous conception, there were no differences in child intelligence, attention, or executive functions in children born to subfertile parents waiting more than 12 months before conceiving naturally or children born by parents conceiving after fertility treatment. The importance of including maternal intelligence score and parental educational level in the analyses were evaluated by excluding these variables in subsequent analyses. This systematically lowered the performance with respect to intelligence and executive functions in children born after fertility treatment or by subfertile parents, although the association remained insignificant.

255.00 PA082 Is Subfertility or Fertility Treatment Associated With Long-Term Growth

Bjørn Bay (1, 2), Erik L Mortensen (3), Ulrik S Kesmodel (2)
(1) School of Public Health, Section of Epidemiology, Aarhus University, Denmark
(2) The Fertility Clinic, Aarhus University Hospital, Denmark
(3) Institute of Public Health, University of Copenhagen, Denmark

Singletons born after fertility treatment have been shown to have lower birth weight compared to spontaneously conceived children. Still, it remains unclear whether smaller anthropometric size at birth in children conceived after fertility treatment persists later in childhood. This prospective follow-up study included 1773 singletons participating in the Lifestyle During Pregnancy Study (LDPS) at the age of 5. The participants were sampled from the Danish National Birth Cohort (DNBC), a large cohort of pregnant women and their children in Denmark established between 1997 and 2003. A total of 69 children were born after fertility treatment, whereas 132 were born to subfertile parents conceiving spontaneously but after a time to pregnancy of more than 12 months. The remaining 1572 children were born to parents conceiving spontaneously within 12 months. At the age of 5, the children participated in a follow-up including anthropometric measurements. Adjusted mean differences on all outcome measures at 5 years were estimated using multiple linear regression, accounting for the sampling probability from the DNBC.
In adjusted analyses, lower birth weight were observed in children born after fertility treatment compared to spontaneously conceived children. However, after accounting for the sampling probabilities, the difference fell just short of significance. Compared to children born to fertile parents, no systematic differences were observed for body weight, height, body mass index or head circumference at age 5 in children conceived after fertility treatment or to subfertile parents. This suggests that IVF children may show catch-up growth during childhood.

438.00 PA083 Resveratrol enhances human ovarian follicle survival and development in vitro in tissue culture

Pauliina Damdimopoulou (1), Maria Argyraki (1,2), Boel Niklasson (1), Outi Hovatta (1)
(1) Division ObsGyn, Department CLINTEC, Karolinska University Hospital Huddinge
(2) Laboratory of Medical Biology and Genetics, Aristotle University of Thessaloniki

Aryl hydrocarbon receptor (AhR) is a ligand regulated transcription factor that triggers apoptosis in human ovarian follicles when activated by environmental toxicants. Here we tested whether modulation of AhR activity by non-toxic ligands has an effect on human ovarian follicle survival and maturation *in vitro* in tissue culture. Seven women undergoing elective caesarian section gave a written informed consent and donated an ovarian tissue for the study. The cortex was evenly distributed into five groups: uncultured background sample, and samples cultured with 0.1 % DMSO (vehicle), 10^{-5} M α-naphtoflavone (AhR antagonist), 10^{-8} M formylindolocarbazole (AhR agonist), and 10^{-8} M resveratrol (mixed AhR modulator). After 1-week culture the tissue was processed into 4 um serial sections for follicles quantification. The frequency of degenerating follicles significantly increased in all cultured samples compared to the fresh background sample (p=0.00 for all comparisons). However, the loss of healthy follicles was significantly inhibited by resveratrol (X^2=4.6, df=1, p=0.03). The frequency of growing follicles was higher in all cultured samples compared to the fresh background control (p=0.00). Within the cultured samples, tissue treated with α-naphtoflavone (X^2=6.9, df=2, p=0.03) and resveratrol (X^2=31.2, df=2, p=0.00) had significantly higher frequency of growing follicles than tissue treated with vehicle. Our study is the first to suggest that modulation of AhR activity by non-toxic ligands may control human ovarian follicle survival and development. Regular dietary constituents like resveratrol could provide a well tolerated strategy to affect growth of human ovarian follicles.

453.00 PA085 Does immune response to Chamydia trachomatis predict tubal factor infertility, a prospective study

Päivi Joki-Korpela (1), Tiina Rantsi (1), Hanna Öhman (2), Mirja Puolakkainen (3), Aini Bloigu (2), Jorma Paavonen (1), Heljä-Marja Surcel (2), Aila Tiitinen (1)
(1) Department of Obstetrics and Gynecology, University of Helsinki, Finland
(2) The National Institute for Health and Welfare, Oulu, Finland
(3) Haartman Institute, Department of Virology, University of Helsinki, Finland

Every sixth couple suffers of subfertility if Finland. It is an extensive health problem requiring broad and expensive evaluation and treatment. Subfertility can be caused by several factors e.g. male factors, endometriosis, hormonal factors, tubal factor infertility (TFI) and unexplained infertility. It would be of great importance to determine the cause of subfertility in order to efficiently plan the most suitable treatment for each couple. Previously, TFI prediction has been based mainly on measuring antibody response to *C.trachomatis* and more recent suggestion is to combine the tests for humoral and cell mediated immunity (CMI) response to infection. This prospective study consistited of couples attending the IVF Unit, Department of Obstetrics and Gynecology, Helsinki University Central Hospital and Kätilöopisto Maternal Hospital during July 2007 – December 2010.
We have examined humoral and cell mediated chamydial immunity parameters from 182 of 228 women, and of these women 8,9% (N 15) were positive for combined markers of past chlamydial infection (both humoral and cell-mediated immunity). The patients with positive immunity were more likely to have tubal pathology than patients without it (20 % vs 10 %, respectively) when compared with findings on hysterosonosalpingography (HSSG) or laparoscopy. Moreover, time to succesfull pregnancy was longer with patients with history of chamydial infection (3,9 years) than that of patients without it (3,35 years). Spontaneous pregnancies occurred more often to women negative for past chlamydial infection (26 %) than to patients with positive markers (20 %) of infection.

253.00 PA087 C-reactive protein in IVF cycles and IVF complications

Kati Korhonen (1,2), Hanna Savolainen-Peltonen (1,2,3), Tomi Mikkola (1,2,3), Aila Tiitinen (1,2), Leila Unkila-Kallio (1,2)
(1) Dep. of Obstetrics and Gynaecology, Helsinki University Central Hospital,Finland
(2) The University of Helsinki, Finland
(3) Folkhälsan Research Institute, Helsinki, Finland

Ovulation is an inflammatory process. We evaluated the levels of circulating CRP in a standard IVF cycle in patients at risk of OHSS and in acute patients with OHSS or other IVF complications (bleeding, torsion, infection).
In a prospective observational study we recruited 27 infertile patients carrying a risk for OHSS participating in an IVF-treatment without complications and 65 patients attending emergency policlinics divided into an OHSS group (n=55: 41 early and 14 late, including 3 with both) and other IVF complications (n=13). CRP was measured a) prior the start of suppression and stimulation, during stimulation, at ovum pick up (OPU), days +2, +7, +14 after OPU, and 3 weeks after treatment b) acute patients: on arrival, on ward and 3 weeks after discharge. Clinical data, including IVF-protocols and laboratory-tests were gathered and analysed as appropriate (SPSS).
During an IVF cycle CRP remained under the detection limit (<3mg/l) but increased to 6.6±6.2 at OPU+2 (*P*=0.001). At admission CRP was higher in early than late OHSS (median 15.0 [1.5-100] vs. 6.0 [1.5-19.0], *P*=0.005, respectively) but CRP did not differ OHSS from other complications (12.0 [1.5-100] vs. 2.5 [1.5-78.0], *P*=0.305). On ward maximum CRP was statistically similar in OHSS and other complications (21.3 [2.5-206] vs. 43.5 [2.5-325], *P*=0.548).
The increase in CRP during IVF treatment is minimal without complications. In acute patients a significant increase in CRP within a week after OPU associates to early OHSS or to other complications. Antibiotics in early OHSS are not indicated without other signs of infection.

292.00 PA088 Predictive factors of poor perinatal outcomes in 6338 singletons born after intrauterine insemination in Denmark - the influence of ovarian stimulation

Sara Sofia Malchau (1), Anne Loft (1), Anna Karina Aaris Henningsen (1), Anders Nyboe Andersen (1), Anja Pinborg (2)
(1) Fertility Clinic, Copenhagen Univsersity Hospital, Rigshospitalet, Denmark
(2) Dept. of Obstetrics and Gynecology, Copenhagen University Hospital, Hvidovre, Denmark

Objective: We aimed to assess predictors of poor perinatal outcome in singletons born after intrauterine insemination (IUI), exploring the effect of e.g. ovarian stimulation.
Design: We conducted a controlled national cohort study from 2007 to 2012. Cases were 4208 singletons born after IUI with husband semen (IUI-H) and 1881 singletons born after IUI with donor semen (IUI-D).
Material and methods: Data originated from the Danish IVF register, medical birth register and hospital discharge register. Stratified analysis was performed for IUI-singletons born after IUI-D vs. IUI-H, for singletons born after ovarian stimulation vs. natural-cycle, and anovulatory/ idiopathic infertility vs. male factor infertility. Multivariate logistic regression analysis adjusted results for maternal age, parity, year of birth, child sex, BMI, smoking, elective caesarean section and induction of labour.
Results: We found increased risk of SGA and LBW in IUI singletons born after ovarian stimulation with CC, compared with natural-cycle IUI, aOR: 1.62 [1.11 – 2.39] and 1.46 [1.03 – 2.06] respectively. Treatment with follicle-stimulating hormone (FSH) alone vs. natural-cycle IUI did not seem to affect risks of SGA and LBW, aOR: 1.23 [0.80 – 1.90] and 0.87 [0.58 – 1.32]. Interestingly, risks of SGA and LBW were similar in the IUI-H and IUI-D group. After stratification on cause of infertility, no differences were found comparing male infertility to idiopathic and anovulatory infertility.
Conclusions: Stimulation with clomiphene citrate (CC) was associated with increased risk of small for gestational age, compared to natural-cycle IUI. Stimulation with FSH did not seem to increase perinatal risks.

186.00 PA089 Circulating cell-derived microparticles in women with recurrent implantation failure after in vitro fertilizacion and embryo transfer.

María-Ángeles Martínez-Zamora (1), Jordina Munrós (1), Gemma Casals (1), Dolors Tàssies (2), Juan Carlos Reverter (2), Juan Monteagudo (2), Salvadora Cívico (1), Francisco Carmona (1), Juan Balasch (1)
(1) Department of Gynecology, Hospital Clínic of Barcelona, Barcelona, Spain
(2) Hemotherapy and Hemostasis Unit, Hospital Clínic of Barcelona, Barcelona, Spain

INTRODUCTION:
Recurrent implantation failure (FIR) following embryo transfer (ET) is a major problem in *In vitro* fertilization (IVF) treatments. It seems that recurrent miscarriage (RM) and RIF may, in some situations, represent different manifestations of the same pathogenic spectrum. Therefore, women with haemostatic defects may be at an increased risk of miscarriage and preclinical pregnancy loss.
Microparticles (MP) are fragments released from activated apoptotic cells. Elevation of circulating MP is considered to be a hallmark of vascular dysfunction. Some reports showed increased MP among RM patients. We investigated MP levels in unexplained RIF patients.
METHODS:
The study group was composed of 30 women diagnosed as having RIF (RIF group). The first control group (IVF group) (n=30) comprised the nearest patient undergoing a first successful IVF-ET cycle before and after each ET defining a patient as a RIF. A second control group (FER group) included 60 healthy women who had at least one child born at term and no history of infertility or miscarriage.
RESULTS:
MP levels were significantly higher in patients with RIF when compared with IVF and FER groups ($P < 0.05$ and $P<0.01$, respectively) (MP number $x10^3$/ml plasma [mean±SD]: RIF group: 15.8 ± 6.2; IVF group: 10.9 ± 5.3; FER group: 9.6 ± 4.0). There were no statistical differences in MP levels between IVF and FER groups.
CONCLUSION:
Patients with RIF have increased procoagulant MP levels, and therefore, MP may play a role in the pathogenic mechanisms of RIF. More studies are warranted to confirm our results.

233.00 PA091 Testosterone and preterm delivery in singleton pregnancies after assisted reproduction

Klara Vinsand Naver (1), Lisbeth Nilas (1), Severin Olesen Larsen (2), Finn Stener Jørgensen (1), Paula Louise Hedley (2,3), David Hougaard (2), Arieh Cohen (2), Ann Tabor (4), Anne Loft (5), Anja Pinborg (1)
(1) Department of Obstetrics and Gynecology, Hvidovre University Hospital, Denmark
(2) Department of Clinical Biochemistry, Statens Serum Institut, Copenhagen, Denmark
(3) Department of Biomedical Sciences, University of Stellenbosch, South Africa
(4) Center of Fetal Medicine, Copenhagen University Hospital Rigshospitalet, Denmark
(5) The Fertility Clinic, Copenhagen University Hospital, Rigshospitalet, Denmark Department of Obstetrics and Gynecology, Hillerød University Hospital, Denmark

Objective: To investigate the association between early pregnancy testosterone and pregnancy outcomes in singleton pregnancies conceived by assisted reproductive technology (ART).
Design: Secondary analysis from a Danish clinical prospective study established between 1st of April 2004 – 31st January 2006 investing combined first trimester screening in ART pregnancies.
Materials and methods: 861 women with singleton pregnancies conceived after in-vitro fertilization, intracytoplasmatic sperm injection or frozen embryo replacement were included. Total testosterone was measured from frozen serum samples obtained in early pregnancy, and pregnancy outcome was extracted from the Danish registries. Testosterone was log transformed, adjusted for gestational age and expressed as log MoM (Multiple of the Median). Odds ratios were calculated for each pregnancy outcome (preeclampsia, early preterm delivery (<34 weeks), preterm delivery (<37 weeks), small for gestational age (SGA) offspring and large for gestational age (LGA) offspring) using multiple logistic regression analysis adjusting for the potential confounders: maternal age, parity, body mass index, smoking and reproductive technique.
Main results: A high MoM value of testosterone (>75% percentile) during first trimester was significantly associated with increased risk of both early preterm delivery (adjusted OR: 2.51 95% CI: 1.04-6.06) and preterm delivery (adjusted OR: 2.19, 95% CI: 1.31-3.66). There was no association between first trimester testosterone MoM levels and the risk of preeclampsia, an SGA offspring or an LGA offspring.
Conclusion: We demonstrated an increased risk of early preterm and preterm delivery in singleton ART pregnancies with high MoM levels of total testosterone during first trimester.

294.00 PA092 Cancer Risk in Parous Women Treated with Assisted Reproductive Technology (ART) in Norway

Marte Reigstad (1,2), Inger Kristin Larssen (2), Tor Åge Myklebust (2), Trude Eid Robsahm (2), Nan Birgitte Oldereid (3), Anne Katerine Omland (3), Siri Vangen (4), Louise Brinton (2), Ritsa Storeng (3)
(1) Norwegian Resource Centre for Women's Health
(2) The Cancer Registry of Norway
(3) Section for Reproductive Medicine, Women and Children's Division, Oslo University, Norway
(4) Division of Cancer Epidemiology, National Cancer Institute, USA

Introduction:
The effects of hormone treatment in ART regarding cancer risk have been studied extensively, but results are inconsistent.
Aim:
The aim of this study is to compare the risk of cancer in women who gave birth following ART to that in women who gave birth following natural conception.
Method:
The cohort consists of 809 006 women registered in the Medical Birth Registry of Norway (MBRN) as having given birth between January 1st 1984 and December 31st 2010. 16 629 women gave birth to one or more children following ART. Data from the MBRN are linked to the Cancer Registry of Norway by personal identification numbers, obtaining all cancer cases. Cox regression analysis is used to compute hazard ratios between ART women and controls; for any cancer, and for breast, cervical, ovarian, uterine, colorectal, central nervous system, thyroid cancer and malignant melanoma.
22 434 cohort members had a cancer diagnosis, 346 ART women and 22 088 controls.
Results:
Analysis of cancer at all sites for ART women compared to controls gave an HR of 1.09 (95% CI 0.98-1.22). For women receiving in-vitro fertilisation (IVF) only, HR was 1.22 (95% CI 1.01-1.48) for breast cancer and 1.69 (95% CI 1.13-2.54) for CNS cancers, compared with controls. For ART women followed for >10 years, HR was 1.33 (95% CI 1.05-1.68) for breast cancer.
Conclusion:
The elevated risk of breast and CNS cancers in subgroups of infertile women stresses the importance of continued monitoring of women treated with assisted reproductive technology.

385.00 PA093 Long-term maternal mortality risk related to preterm preeclampsia: effects of fetal size.

Rolv Skjærven (1,2), Lisa deRoo (1,3), Kari Klungsøyr (1,2), Nils-Halvdan Morken (1,4), Janet Rich-Edwards (5), Allen J. Wilcox (3)
(1) Department of Global Public Health, University of Bergen, Bergen, Norway
(2) Medical Birth Registry of Norway, Norwegian Institute of Public Health, Bergen, Norway
(3) Epidemiology Branch, NIEHS/NIH, Durham, North Carolina, USA
(4) Department of Obstetrics & Gynecology, Haukeland University Hospital, Bergen, Norway
(5) Department of Epidemiology, Harvard School of Public Health, Massachusetts, USA

Women with a preterm birth in a preeclamptic pregnancy have excess cardiovascular (CVD) mortality. Based on complete reproductive experience of 836147 women, we will evaluate the effects of the size of the fetus in preeclamptic pregnancies on risk for early death in mothers.

We use data from the population-based Medical Birth Registry of Norway, covering births in 1967 to 2009. Women with 1st births in 1967 to 2002 were followed for total reproduction and/or death until 2009. There were 23000 maternal deaths, 3891 were due to cardiovascular (CVD) causes. We used quartiles of birthweight-by-gestational-age to assess size of the fetus. Analyses were adjusted for period, maternal age and education.

Women with preterm preeclampsia and a small fetus (lowest quartile), had 2.5-fold increase (95%C.I 1.6-3.8) in CVD death, while a large fetus (highest quartile), had 12.3-fold (7.3-21) increased risk. Similarly strong HR-values were found both for 22-34 and 35-36 weeks (HR=11.4, and 13.0). Excluding diabetes moderately reduced these high risks. For women with one lifetime pregnancy, risks were largely increased.

Previous studies have shown that a woman with a small fetus have higher risk for early CVD death, however we find that in preterm preeclampsia, a large fetus represent a much higher hazard to the mother. Also, the increase in risk for women with no subsequent births may reflect the effects of maternal morbidity, which could decrease fertility or reduce the woman's interest in additional children. One child mothers with preterm preeclampsia are in special need for preventive health care.

335.00 PA094 Risk of gestational diabetes in singleton pregnancies conceived by assisted reproductive technologies.

Anne Tandberg (1,3), Rolv Skjaerven (2,3)
(1) Department of Obstetrics and Gynecology , Haukeland University Hospital, Bergen, Norway
(2) Medical Birth Registry of Norway, Institute of Public Health, Norway
(3) Institute of Global Health and Primary Care, University of Bergen , Norway

Background: Adverse perinatal outcomes are more common in pregnancies after assisted reproductive technologies (ART) compared to those spontaneously conceived (SC). This disadvantage is not fully understood, but increased obstetrical complications in ART pregnancies have consistently been observed. Gestational diabetes is associated with higher rate of cesarean section and higher risk of shoulder dystocia and fetal hyperinsulinemia. We estimated the risk of gestational diabetes in singleton pregnancies following ART compared to spontaneous conceptions.
Methods: Population-based data from Medical Birth Registry of Norway, 1988-2010, including 583.506 mothers with at least one offspring. Only singleton pregnancies were selected. Information about ART was available through a separate registry. Infants were linked to their mothers by the national identification number, enabling us to do birth order specific analyses dependent on each woman's previous reproduction.
Outcome measures: Odds ratios (OR; 95% confidence intervals) of gestational diabetes in first and second pregnancies of women with ART relative SC pregnancies were estimated.
Results: The prevalence of gestational diabetes was 0.6% in first and 0.7 % in second pregnancies. Corresponding figures in ART pregnancies were 1.3 % and 1.4 %. Thus, the ORs of gestational diabetes in ART relative SC pregnancies was 2.4 (2.0-2.8) in first and 2.2 (1.7- 2.8) in second pregnancies. Adjusting by maternal age lowered the OR to 1.6 (1.4 -2.0) in first and 1.5 (1.2-2.0) in second pregnancy.
Conclusions: The prevalence of gestational diabetes is independent of parity, but women treated by ART to conceive have more than doubled risk to develop gestational diabetes during pregnancy.

429.00 PA095 Live birth rate in women with extremely low levels of AMH

Mervi Halttunen-Nieminen (1), Christel Hyden-Granskog (1), Aila Tiitinen (1)
(1) Department of Ob/Gyn, Helsinki University Central Hospital

Background: AMH is a marker of ovarian response and a possible predictor of pregnancy outcome after IVF/ICSI treatment. It is not known, if low levels of circulating AMH would indicate withholding IVF treatment.

Methods: We have measured AMH levels from all women considering IVF/ICSI treatment since May 1, 2011. During the first year 52 women with AMH levels <0,2 ng/ml were identified. Only 11 women had elevated serum FSH level (>12 IU/l). Out of these 52 women 38 started an IVF stimulation cycle. One IVF cycle was performed in 32 couples, three had 2 or 3 cycles, respectively. The total dose of recFSH was 3000-5950 IU and the length of stimulation 10-21 days.

Results: In four cases oocyte pick-up was cancelled and in two cycles no oocytes were recovered. In 27 cycles fresh ET was performed. Serum hCG was positive in six cases (22%), but in three cases the levels were low (biochemical pregnancies). Two pregnancies were extra uterine, and one healthy child was born. The live birth rate is 3,7%/ET. Cryopreservation was performed in seven cycles, after thawing seven ETs have been performed with one on-going pregnancy. During the follow-up there have been three spontaneous pregnancies resulting in one live birth. In 14 women, who did not start IVF treatment, there have been three deliveries. The cumulative live birth rate is 2/38 (5,2%) after ART and 6/52 (11,5%) totally.

Conclusions: Live birth rate is low in women with undetectable AMH levels. These results can be used during patient counselling.

379.00 PA096 Lifestyle intervention up-regulates the endometrial insulin signaling molecules in obese women with PCOS

Dorina Ujvari (1), Maryana Hulchiy (1), Allan Calaby (1), Åsa Nybacka (1), Birgitta Byström (1), Angelica Linden Hirschberg (1)
(1) Karolinska Institutet, Department of Women`s and Children`s Health, Stockholm, Sweden

There is increasing evidence that the endocrine abnormalities in polycystic ovary syndrome (PCOS) may have complex effects on the endometrium, contributing to implantation failure and miscarriage. However, little is known about the role of insulin signaling in the endometrium of women with PCOS. Our aim was to study the insulin signal transduction in proliferative endometrium of obese women with PCOS in response to lifestyle intervention and compare to controls. Groups of obese and normal-weight women fulfilling all the Rotterdam criteria of PCOS and groups of age and body mass index (BMI)-matched healthy controls participated in the study. Seventeen obese women with PCOS completed combined diet and exercise lifestyle intervention for three months. Endometrial biopsies were collected at menstrual cycle day 6-8 and gene expression levels and immunohistochemical staining of insulin signaling pathway molecules were analyzed. Women with PCOS exhibited significantly lower levels of IRS1 and GLUT4 mRNA in their proliferative endometrium than BMI-matched controls. After 3 months of lifestyle intervention menstrual pattern was clearly improved in 65% of obese PCOS women. BMI and fasting insulin levels were reduced significantly. Levels of IRS1 and GLUT1 mRNA were significantly up-regulated in women with improved menstrual function, as well as protein expression of several insulin signaling molecules. Serum level of SHBG, gene expression level of IRS1 and decrease of BMI and serum level of estradiol correlated to improved menstrual function. Since lifestyle intervention up-regulates, both at the mRNA and protein levels, components of insulin signaling in the endometrium of obese PCOS women in relation to improved menstrual pattern, endometrial insulin signaling appears to play an important role in endometrial function in PCOS.

169.00 PA097 Individualized proteome profiling of human endometrial tumours improves detection of new prognostic markers

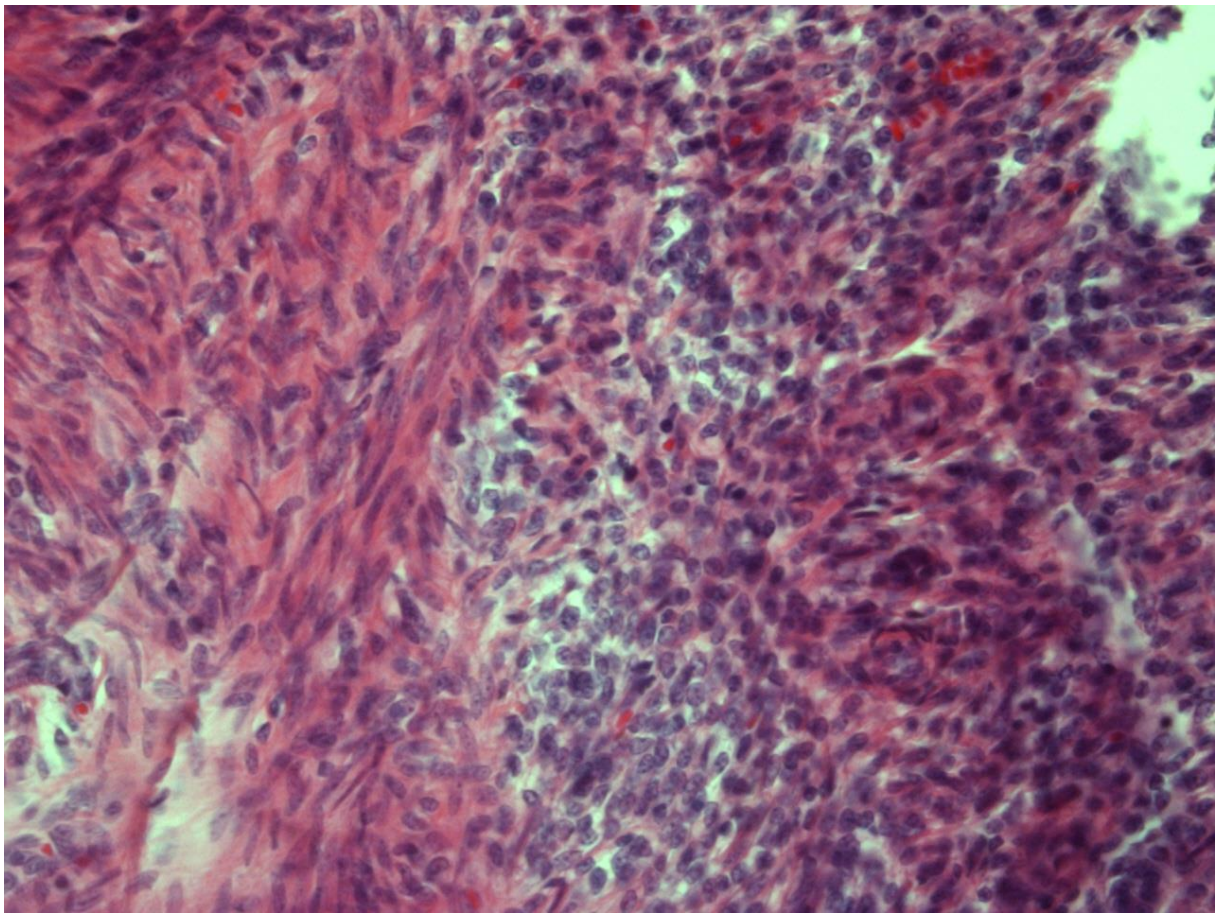
Sanaz Attarha (1,2), Miriam Mints (1), Sonia Andersson (1), Serhiy Souchelnytskyi (2)
(1) Karolinska Institutet, Dept. Women's and Children's Health, Stockholm, Sweden
(2) Karolinska Institutet, Dept. Oncology-Pathology, Stockholm, Sweden

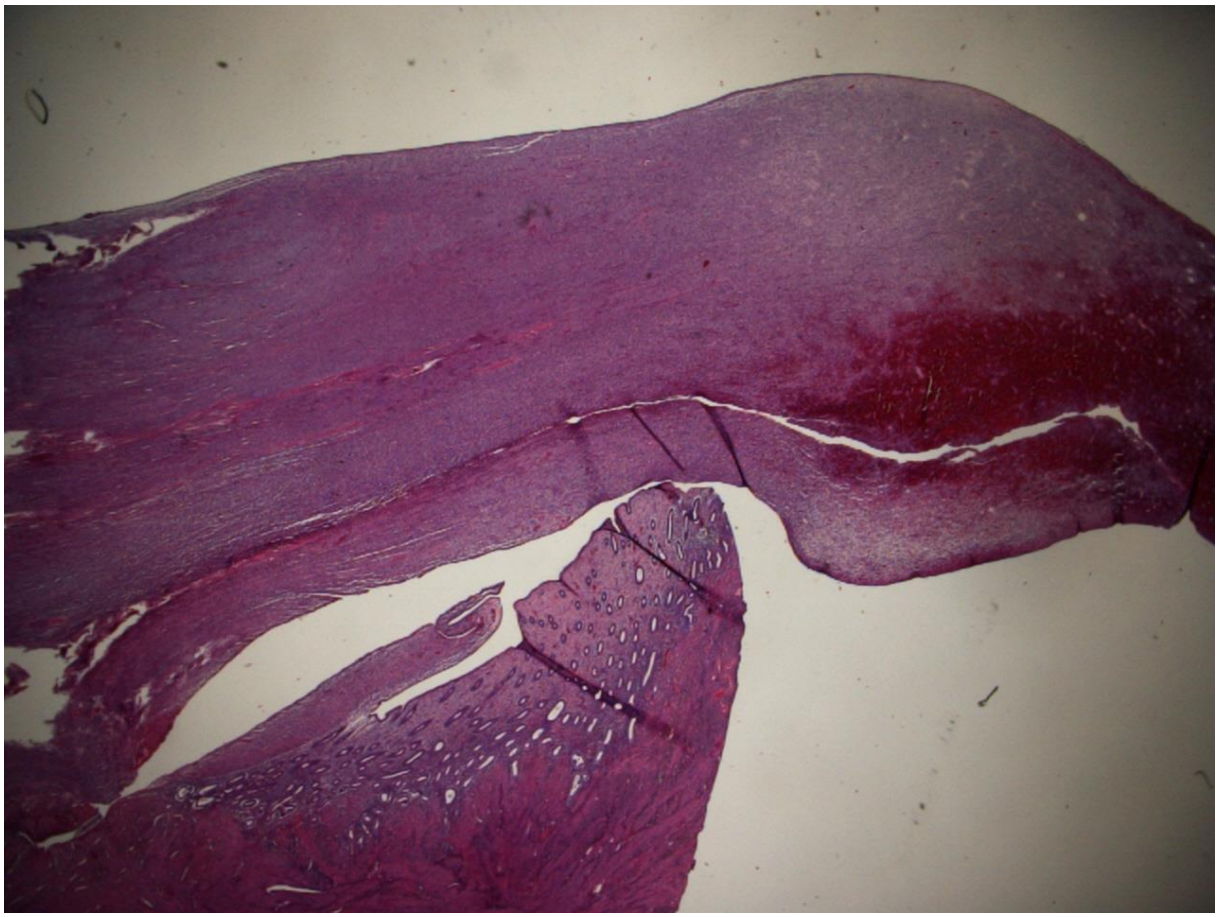
Background: The individual features of tumours are often disregarded in cohort studies. As these features may represent a source for individualized cancer treatment, it is important to develop a novel approach for their assessment.
Methods: We used proteomics, systems biology and immunohistochemistry to explore protein expression in human endometrial tumours, identify deregulated regulatory mechanisms, and validate observed changes in protein expression using tissue microarrays.
Results: Compared to the evaluation of common tumour features, the evaluation of individual tumour features gave a more comprehensive and detailed overview of the regulatory processes in endometrial tumours. Systemic analysis of the individual proteome profiles showed that endometrial tumours employed different proteins to regulate similar functions. Comparison of our data with publicly available datasets of molecular profiling of human endometrial tumours confirmed that individual tumour features are not simply irrelevant individual variations, but are indeed important in endometrial tumorigenesis. Validation through tissue microarray investigation of MST1 and PKN1 proteins confirmed the usefulness of this approach.
Conclusions: We show that individualized profiling of endometrial tumours may deliver better insights into a tumour's physiology, thereby giving a better prediction of tumour development. Individual tumour features may also be used to tailor cancer treatment.
Key words: endometrial cancer, proteomics, systemic analysis, personalized diagnostics

357.00 PA098 Endometrial stromal nodule - a rarity and a pathological challenge

Camilla Skovvang Borg (1), Ferid Madzak (1), Huda Galib Majeed (1)
(1) Kvindeafdelingen, Regionshospitalet Viborg

Introduction
Endometrial stromal tumors are rare, they classify into three types – endometrial stromal nodulus (ESN), low-grade stromal sarcoma and undifferentiated stromal sarcoma, and the differentiation between the three subtypes is difficult. Furthermore, the prognosis vary from benign to invasive and malignant. Histological examination of the uterus after hysterectomy is the most accurate method of diagnosis.
ESN is the least common type of endometrial stromal tumors, and is characterized as well-defined, benign and non-invasive. Since 1995 only two cases have been reported in Central Jutland, Denmark with a population of 1.2 mill people
Case
We report a rare case of a 38-year-old woman who presented to our department with nausea and abnormal uterine bleeding. Vaginal ultrasound suspected intrauterine polyp and fibroma measuring 11 x 45 mm. Transcervical polyp resection was performed. Histopathological examination showed endometrial stromal nodulus with unclear margins, and invasive malignant endometrial sarcoma could not be excluded. Preoperative MRI showed an invasive tumor in the endometrium, but without signs of extra uterine spreading.
The patient underwent a successful total laparoscopic hysterectomy. Pathological examination of the removed uterus revealed an ESN measuring 19 mm with an invasion of two mm.
Conclusion
Endometrial stromal tumors are interesting because of their rare existence and difficulties in establishing histological diagnosis. No pre-operative imaging investigations can rule out malignancy. All though ESNs are benign entities, hysterectomy is gold standard since histological examination is necessary to exclude malignancy.





200.00 PA099 Clinical characteristics and survival of 187 patients with an adult-type ovarian granulosa cell tumor

Saara Bryk (1,2), Anniina Färkkilä (1,2), Ralf Bützow (3), Mikko Anttonen (1,2), Markku Heikinheimo (2,4), Arto Leminen (1), Annika Riska (1), Leila Unkila-Kallio (1)
(1) Dep. of Obstetrics and Gynecology, Helsinki University Central Hospital, Finland
(2) Children's Hospital, Helsinki University Central Hospital, Helsinki, Finland
(3) Dep. of Pathology, Helsinki University Central Hospital, Helsinki, Finland
(4) Dep. of Pediatrics, St Louis Children's Hospital, St Louis, Missouri, USA

Objective: To evaluate clinical prognostic factors affecting survival of patients with ovarian granulosa cell tumors (GCTs) in a long-term follow-up study.
Methods: A total of 240 adult-type GCTs diagnosed in Helsinki University Central Hospital from 1956-2012 were histologically reevaluated. Data of the retrospective and prospective patient series were analyzed for several clinical prognostic factors affecting survival in two eras based on the introduction of platinum-based chemotherapy.
Results: The original diagnosis was confirmed in 187 (77.9%) patients. The mean age at diagnosis was 52.9 years and the mean follow-up period was 15.7 years. Abnormal bleeding was the most common presenting symptom, but 14.0% of patients were asymptomatic. The mean tumor size was 10.8 cm, and 89.2% of patients had a FIGO stage I disease. GCT-specific 5-, 10-, and 20-year survival rates were 96.7%, 91.8% and 87.1%, and specifically in the platinum era 97.2%, 94.8% and 94.8%, respectively. In univariate analyses, pre-platinum era, patient age over 60 years, tumor size over 10 cm, advanced stage, residual tumor and use of hormonal adjuvant treatment were associated with GCT-related deaths. Lack of symptoms, prior use of oral contraceptives, history of infertility and platinum-based chemotherapy improved survival rates. In multivariate analysis, only stage was an independent prognostic factor for GCT-specific survival.
Conclusion: A critical histological diagnosis of GCT is vital. Tumor stage remains the most important clinical prognostic factor. Prognosis has improved since the introduction of platinum-based chemotherapy. Fertility-sparing surgery, the use of oral contraceptives or hormonal replacement therapy do not seem to deteriorate survival.

151.00 PA100 Life after cancer – Development of a screening tool to identify risk factors for impaired quality of life after low stage gynecological cancer

Lotte Dahl (1), Ulla Væggemose (2), Inge Wittrup (2), Lone K Petersen (1), Jan Blaakær (1)
(1) Department of Gynecology and Obstetrics, Aarhus University Hospital, Denmark
(2) CFK, Public Health and Quality Improvement

Objective:
Evidence now reveals that attending a follow-up program after low-stage gynecological cancer may not improve survival. Quality of life after cancer for patients attending the standardized follow-up program was explored. Additionally, health professionals' views of and experiences with the existing follow-up program were explored. The overall aim was to develop a screening tool to identify the vulnerable patients with specific rehabilitations needs.
Materials and methods:
Observations and semi-structured individual interviews with patients attending a follow-up program were conducted along with three focus group interviews with health professionals in onco-gynecology. The qualitative studies provided information for designing a questionnaire. Low-stage gynecological cancer patients were included in the prospective questionnaire study with follow-up at the time of diagnosis, 1, 6, and 12 months after surgery.
Results:
The majority of the patients seemed to have the personal ressources or coping strategies to regain a good life after cancer. However, some patients did not. They may need special rehabilitation in order to achieve a fair quality of life. Our questionnaire seems to be able to identify the patients with increased risk of impaired quality of life after cancer.
Perspectives:
We believe, that the results in our study are not related to the cancer type, but can be generalized to other groups of cancer patients. This screening tool can help prioritizing the use of resources to where it is needed. This means a more reasonable use of resources for the healthcare system and the possibility for more individualized follow-up for the patients.

123.00 PA101 Do we have to change the follow-up after surgery for cervical cancer?

Katrine Fuglsang (1), Lone Kjeld Petersen (1), Jan Blaakær (1)
(1) The Department of Gynecology and Obstetrics, Aarhus University Hospital, Denmark

Objective
After surgery for cervical cancer women are offered to attend a follow-up program 10 times during five years. The aim of this study is to evaluate the follow-up program used through several decades. Does the follow-up program fulfill the purpose of early diagnosis of recurrence?
Methods
A retrospective longitudinal study of 390 women with cervical cancer and surgery as the primary treatment modality at the Department of Gynecology and Obstetrics, Aarhus University Hospital, Denmark from 1996 to 2011. In the national pathological database and patient files information was extracted and stored in Epidata. The cumulative risk was estimated by Kaplan-Meier estimate and the hazard ratio was calculated and compared by Cox regression.
Results
Fortyfour(11%) women had recurrence, of these 12(27%) were diagnosed at a scheduled follow-up visit. The five-year survival was overall 91.5%, recurrence-free survival 96% and cancer-specific survival 54%. The age-adjusted mortality hazard ratio associated with recurrence: 7.2 (95%CI: 4,12.8).
Conclusions
The value of the follow-up programs after treatment for cervical cancer has been discussed continuously ever since the 1980-ies. Several retrospective studies have been conducted. The results have been conflicting, but all conclude a lack of evidence corresponding to the performance of follow-up. Gradually little adjustments have been made, and the follow-up is still performed, though with a wide diversity. New recommendations are in preparation suggesting no follow-up at all for this patient-group. Are these changes evidence-based?

24.00 PA102 Higher risk for breast cancer in patients previously diagnosed with ovarian granulosa cell tumor

Anne Hammer (1), Finn Friis Lauszus (1), Astrid Pedersen (2)
(1) Department of Obstetrics and Gynecology, Herning Hospital, Denmark
(2) Department of Pathology, Aalborg University Hospital, Denmark

Ovarian granulosa cell tumor (GCT) is a rare neoplasm that has a comparatively favourable prognosis owing to early detection because of the tumour's estrogen secretion. GCT patients have a significantly increased risk of endometrial cancer. However, no research has yet explored a possible association between GCT and other hormone-related cancers, such as breast cancer. We conducted a retrospective follow-up study to explore if breast cancer incidence is heightened in GCT patients. We reviewed medical records and histological sections on 163 GCT patients, and searched the Pathology Registry to determine if the patients had been diagnosed with breast cancer. Eight (95 % CI; 3.4 -15.8) were diagnosed with a breast neoplasm; one with Paget's disease of the nipple, and seven patients with breast carcinoma. Based on calculations using breast cancer incidence rates in Danish females, we expected only 2.5 cases of breast cancer. Yet, an odds ratio of 3.3 (95% CI, 1.6- 6.6) reveals that GCT patients have a significantly increased risk also of breast cancer.

221.00 PA103 Age-specific occurrence of HPV 16 and 18 in Cervical Cancer : a review

Anne Hammer (1), Patti Gravitt (2), Jan Blaakaer (1)
(1) Department of Obstetrics and Gynecology, Aarhus University Hospital, Denmark
(2) Department of Pathology, University of New Mexico Health Sciences Center, USA

Background: Human papillomavirus (HPV) has been established as a necessary cause of cervical cancer, and HPV 16 and 18 can be detected in the majority (70%) of such cancers. However, recent studies have reported that older women with cervical cancer are less frequently HPV 16/18 positive than younger women are.
Material and Methods: We searched MEDLINE and Embase using the MESH terms “Papillomaviridae”, “Humans”, “Cervical cancer, uterine”, “Genotypes”, and “Polymerase chain reaction” and thereby identified 734 papers. Meeting our eligibility criteria were 114 studies of which 36 reported information on age.
Results: In the majority of studies evaluated, the proportion of HPV 16/18 positive cancers declined with age. The prevalence of HPV 16 and/or 18 positive cervical cancers was highest in women < 30 years (65.6 % to 100%) and lowest in women >70 years (49.4 % to 75.0 %). Moreover, other HPV types such as HPV 31, 33, 52 and 58 were more commonly detected in women > 70 years (25-50%) with cervical cancer compared to women < 30 years (0-29.6%).
Perspective: These findings suggest that the protective effect of the current HPV vaccines may decline as women age and risk of cancer due to non-vaccine-targeted HPV types increases. A nonavalent HPV vaccine would be expected to offer longer term protection against cervical cancer across the lifespan, presuming no waning immunity with time since vaccination.

332.00 PA105 Human papillomvirus in women with endometrial cancer

Benny Kirschner (1), Delfina Fornari (2), Ditte Møller Ejegod (2), Jette Junge (2), Jesper Bonde (2,3)
(1) Department of Gynecology & Obstetrics, Hvidovre University Hospital, Copenhag
(2) Department of Pathology, Hvidovre University Hospital, Copenhagen, Denmark
(3) Department of Clinical Research Centre, Hvidovre University Hospital, Copenhagen

Endometrial cancer (EC) is an important cause of morbidity and mortality of women worldwide with almost 300.000 new cases every year, with 700 Danish women diagnosed annually. Several studies have shown that the most important risk factors for EC are exposure to unopposed oestrogen, obesity and selective oestrogen receptor modulators. However, another causal agent might be in play; the role of human papillomavirus (HPV) in the development of cervical neoplasia is well established, and new research indicates that HPV is also the cause of other non-gynaecological malignant tumours like head/neck carcinomas, non-melanoma skin cancer and lymphoma. Here we have conducted an analysis to explore the possible relation between EC and HPV, by analyzing 128 EC tumors from Danish women. The study material was formalin fixed, paraffin embedded (FFPE) tissue blocks with histologically confirmed EC. Histologically defined EC tumor cell areas were micro-dissected for DNA extraction. DNA extraction was done by Pico Pure™ DNA Extraction Kit and QuickExtract™. HPV Genotyping was undertaken with the CLART® HPV2 microarray, (Genomica, Madrid, Spain) detecting 35 defined HPV genotypes. Results showed that 17 (15.3%) of 128 specimens contained HPV DNA. The most commonly observed HPV genotype was HPV33 followed by HPV11, 83 and 18. Only three of the HPV positive samples came from women with previous cervical CIN. In conclusion, HPV DNA was found in around 1/6 of the evaluated tumors, and we hypothesize that HPV might have either a causal or a co-factor role in EC development; a role that needs further investigation.

222.00 PA106 Preoperative MRI in staging of local cervical cancer.

Leena Laitinen (1), Katja Hukkinen (1), Ilkka Kalliala (1), Dyba Tadeusz (2), Arto Leminen (1), Ralf Butzow (1), Jorma Paavonen (1), Päivi Pakarinen (1)
(1) HUCH Hospital Area Hospital District of Helsinki and Uusimaa
(2) Finnish Cancer Registry

Objective
Local cervical cancer is managed by radical hysterectomy. In younger patients, trachelectomy should be considered. Therefore accurate methods are needed to define the extent of cancer. We studied the accuracy of MRI in clinical decision making.

Methods
Our retrospective cohort study contains consecutive patients with a diagnosis of primary local cervical cancer in Helsinki University Central Hospital during the years 2000-2009. Patients were staged by FIGO classification to have stage IIA or less. Of 190 patients, 124 were eligible for the study. 120 of 124 MRI's were available for review .
We analysed tumor size, parametrial and lymph node status.

Results
The accuracy of MRI in relation to histology was 54, 46, 54, and 92% when tumor size was 0, 1-20, 21-40, and over 40 mm. Considering tumor size under and over 20 mm, the accuracy for MRI to histology was 86 and 75%.
Specificity of MRI for parametrial and lymph node status was 95 and 96% and sensitivity 17 and 7%, respectively. PPV was 14 and 20% and NPV 96 and 89%.

Conclusion
MRI is an accurate tool in staging cervical cancer. The accuracy is especially good with tumors over 40 mm and when dividing tumors only under and over 20 mm. However in relation to parametrial invasion (PMI) and lymph node involvement the accuracy is limited. The high NPV of MRI for PMI and lymph node involvement augments to plan fertility preservation surgery.

354.00 PA107 Primary or Interval debulking surgery for advanced epithelial ovarian cancer – does it matter?

Algirdas Markauskas (1), Pernille Tine Jensen (1), Ole Mogensen (1)
(1) Odense University Hospital, Dep. of Gynaecology & Obstetrics, Odense, Denmark

Objective: The aim of the present study was to investigate surgical complexity, postoperative morbidity and survival after primary (PDS) and interval debulking surgery (IDS) for advanced epithelial ovarian cancer (EOC). **Materials and methods:** Consecutive patients who underwent debulking surgery between January 2007 and December 2012 for stage IIIc and IV EOC were included. Data were obtained from the Electronic Medical Files of the patients. **Results:** Of 332 patients included, 165 (49.7 %) underwent PDS and 167 (50.3 %) underwent IDS. Complete intraperitoneal cytoreduction was achieved in 70.9 % after PDS and 59.9 % after IDS. Gross residual disease was left in 18.5% and 27.5 % following PDS and IDS respectively. PDS was associated with higher surgical complexity, longer operating time, greater blood loss, longer hospitalization and higher rates of major postoperative complications (26.7 % vs. 16.8 %). More patients had their chemotherapy postponed (12.7 %) or abandoned (13.9 %) after PDS, compared to IDS group (5.4). Despite of lower rates of postoperative complications and the higher rates of completion of chemotherapy, median overall survival after complete intraperitoneal cytoreduction following IDS was shorter, than after PDS: 33.3 and 51.7 months respectively. **Conclusions:** It is suggested, that IDS may not be perceived as a valid alternative to PDS or the easy way out in the treatment of patients with advanced EOC. IDS may rather be perceived as a chance for those patients who are assessed inoperable primarily. Careful selection of patients for both types of debulking surgery is essential.

155.00 PA108 Rehabilitation Needs of Women with Endometrial and Cervical Cancer

Mette Moustgaard Mathiesen (1), Pernille Tine Jensen (1), Pernille Dehn (1), Ole Mogensen (1)
(1) Odense University Hospital, Dpt. of Gynaecology and Obstetrics, Odense, Denmark

Introduction:
It is essential that gynaecologic cancer survivors are provided with purposeful rehabilitation. Consequently, an accurate and varied assessment of needs is required.
Objective:
To identify short-term rehabilitation needs of women with endometrial and cervical cancer.
Methods:
Women diagnosed with endometrial (n = 52) or cervical cancer (n = 44) were recruited from Odense University Hospital between September 2011 and March 2012. The women's needs of rehabilitation were assessed using questionnaires administered prior to treatment and three months later. A subgroup (n =16) took part in two focus group interviews selected on age (>/< 55 years).Comparative analysis was performed.
Results:
Emotional functioning was significantly worse prior to treatment in both cancers ($p < 0.001$ cervical, $p= 0.002$ endometrial) compared to 3 months later. Worry constituted an important unmet need (70.7 % cervical, 34.7 % endometrial). Post-treatment side-effects included lymphedema ($p = 0.006$), urogenital problems ($p = 0.018$), and constipation ($p = 0.005$) in endometrial cancer patients. Cervical cancer patients reported a high level of lymphedema ($p = 0.002$).
Despite significant findings, mean scores did not differ considerably from normative values, suggesting few needs of rehabilitation in general. Qualitative findings revealed factors associated with rehabilitation needs for patient subgroups. Radiotherapy as opposed to surgery resulted in more side-effects, longer duration of treatment and more restrictions in everyday life, hence suggesting a greater need for specialized rehabilitation.
Conclusion:
An awareness of the potential problems demonstrated may facilitate early identification of women with unmet needs and individualized follow up adjusted to patients' needs.

156.00 PA109 Follow-up of Endometrial Cancer Patients: A Valuable Medical Intervention or a Dispensable Force of Habit?

Mette Moustgaard Mathiesen (1), Pernille Tine Jensen (1), Dorte Gilså Hansen (2), Ole Mogensen (1)
(1) Odense University Hospital, Dpt. of Gynaecology and Obstetrics, Odense, DK
(2) University of Southern Denmark, Research Unit of General Practice, Odense, DK

Introduction:
Recent retrospective studies challenge the rationale for performing follow-up examinations after endometrial cancer. Curable recurrences are detected regardless of follow-up due to symptoms and consequently follow-up examinations do not improve survival. Though associated with a sense of security, follow-up examinations are also known to induce anxiety in the women.
Objective:
To compare hospital-based follow-up examinations with instruction in self-referral in stage I endometrial cancer patients.
Methods:
Design: A multi-center randomized controlled trial.
Population: Women treated for stage I endometrial cancer at Odense University Hospital, Aalborg University Hospital, Aarhus University hospital and Roskilde Hospital between April 2013 and April 2015. Randomization is done following FIGO staging, and those scheduled for adjuvant oncologic treatment are excluded.
Women allocated to the control group attend regular follow-up examinations at the department of Gynaecology and Obstetrics for three years following discharge. Women in the intervention group are carefully instructed in symptoms that require examination by a physician and contact to the department will thus be initiated by the patient. Primary end-point is fear of recurrence as measured by a validated multiscale assessment (skriv her skemaets navn). Further, quality of life, unmet needs, and disease-free survival will be assessed as well as cost-utility analyses.
Progress and perspectives: Results will not be available for the conference, but a description of the methods and progress will be presented. Findings may greatly impact on future follow-up offers for endometrial cancer patients.

425.00 PA110 The gynecological surveillance of women with Lynch syndrome

Miriam Mints (1), Gerasimos Tzortzatos (1), Emil Andersson (1), Kristina Gemzell Danielsson (1), Annika Lindblom (2), Emma Tham (2)
(1) Department of Women's and Children's Health, Karolinska Institutet, Karolinska University Hospital, Sweden
(2) Department of Clinical Genetics, Karolinska Institutet, Karolinska University Hospital, Sweden

Background Lynch Syndrome (LS) is an inherited autosomal dominant disorder. It accounts for 2 % of all colon- and endometrial cancer (EC) cases in Sweden as well as for about 9 % of all EC with onset before age 50. Women with LS have a 40-60 % lifetime risk of developing EC and 12 % for ovarian cancer (OC).
Aim To evaluate the control program for women with LS in Sweden.
Methods A retrospective observational study of the gynecological control program for women with LS in Sweden. Data regarding control length, diagnostic tools, prophylactic surgery if any was collected from medical records from 170 women with confirmed LS.
Results EC incidence among participators in control program was 12, 8 % comparing to 76,4 % for women that did not attend control program. Among 13 cases of ECs that were diagnosed on a control visit, seven were diagnosed by endometrial biopsy, four women got symptoms and in two women EC was found by accident on a prophylactic surgery.
OC incidence among participators in control program was 2.3% comparing to 6.98% that did not attend control program. OC were discovered on controls by ultrasound. These patients had normal values of CA-125.
Prophylactic surgery only significantly reduced cancer incidence (p=0.00979) in women with LS.
Conclusions
Endometrial biopsies and ultrasound are essential to have in the control program to diagnose EC and OC as early as possible. Prophylactic surgery is the only measure that significantly reduces cancer incidence.

390.00 PA111 Wig-1 expression in cervical cancer is associated with HPV status and survival

Susanne Friederike Müller (1), Li-Di Xu (2), Klas G Wiman (2), Catharina Larsson (2), Sonia Andersson (1)
(1) Dept of Women's and Children's Health, Division of OBGYN at Karolinska Institute
(2) Dept of Oncology-Pathology, CCK at Karolinska Institute

The *WIG-1* gene (PAG608, ZMAT3), a p53 target is located on human chromosome 3q26.32, a region that is frequently amplified in human neoplasms, including cervical cancer.
This study was performed to examine whether WIG-1 is a molecular marker for cervical carcinogenesis and whether its expression is preferentially associated with HPV-positive or HPV-negative cervical cancers. We also investigated the correlation between WIG-1 expression and survival.
After having investigated the status of WIG-1 in cervical carcinoma cell lines we now examined its expression in 38 cervical tumor samples, including both squamous cell carcinoma and adenocarcinoma.
Nuclear Wig-1 expression was significantly higher in HPV negative compared to HPV positive tumors (p=0.002) and in adenocarcinoma compared to squamous cell cancer (p<0.0001), suggesting a possible role in HPV negative cervical carcinogenesis, especially adenocarcinoma. Patients whose tumors showed a moderate vs. high nuclear and positive vs. negative cytoplasmic Wig-1 expression pattern had a better survival than those with strong nuclear and negative cytoplasmic expression (p=0.042).
Our results indicate a growth-promoting and/or cell death antagonizing function of nuclear Wig-1 and suggest that Wig-1 expression could serve as a prognostic marker in cervical carcinoma.

334.00 PA112 Does radical vaginal trachelectomy cause sexual and urological problems – A prospective comparative questionnaire study.

Ligita P. Frøding (1), Christian Ottosen (2), Berit Jul Mosgaard (2), Pernille Tine Jensen (3)
(1) Dept. of Gynecology and Obstetrics, Copenhagen University Hospital Herlev, Herle
(2) Dept. of Gynecology and Obstetrics, Copenhagen University Hospital Rigshospitale
(3) Dept. of Gynecology and Obstetrics, Odense University Hospital, Odense, Denmark

Background: Radical vaginal trachelectomy (RVT) offers a possibility for future childbearing for young women with early stage cervical cancer (CC). However, the literature is scarce on quality of life (QOL) and self- reported morbidity in patients undergoing RVT.
Aim: To prospectively assess quality of life after RVT with focus on sexual dysfunction and urogynaecological morbidity and compare with scores from patients treated with radical abdominal hysterectomy (RAH) and with those of age-matched healthy control women.
Methods: Eighteen patients with early stage CC operated with RVT were prospectively included and assessed using validated questionnaires preoperatively, 3, 6 and 12 months postoperatively. 32 RAH patients were assessed once at 12 months postoperatively.
Results: During the first 12 months post-treatment RVT patients had persistent sexual dysfunction as measured by FSFI (mean overall score < 26.55 at each assessment). Sexual worry (p <0.001) and lack of sexual desire (p=0.038) were more frequently reported among patients in both treatment groups compared with the control group. Global Health Status score improved over time for the RVT group but never reached that of the healthy control group (p = 0.029). 50% of the RVT group and 41 % of the RAH had any grade of incomplete bladder emptying problems at one year post surgery assessment.
Conclusion: Our data suggest that patients treated with RVT for early stage CC experience persistent sexual dysfunction and bladder emptying problems up to one year postoperatively, influencing negatively on their quality of life.

51.00 PA113 Comparison of triage tests of high-risk HPV positive women with minor cytological abnormalities

Maria Persson (1), K.Miriam Elfström (2), Sophia Brismar Wendel (1), Elisabete Weiderpass (2,3,4,5), Sonia Andersson (1)
(1) Department of Women's and Children's Health, Division of Obstetrics and Gynecology
(2) Department of Medical Epidemiology and Biostatistics Karolinska Institutet, Stockholm, Sweden
(3) Cancer Registry of Norway, Oslo, Norway
(4) Department of Community Medicine, Universitetet i Tromso, Tromso, Norway
(5) Samfundet Folkhälsan, Genetic Epidemiology Group, Folkhälsan Research Center, Finland

Objective: Expression of viral E6/E7 oncogenes of high-risk human papillomaviruses (HR-HPV) is necessary for malignant conversion and maintenance in cervical tissue. To determine triage test efficacy of HR-HPV E6/E7 mRNA by the APTIMA HPV Assay (detects E6/E7 mRNA from 14 HR-HPV types), HPV16 DNA, HPV16/18 DNA and repeat cytology. Knowledge could provide guidance for the management of HR HPV positive women with minor cytological abnormalities.

Methods: 205 women with minor cytological abnormalities were followed for 4 years. Baseline HR HPV DNA detection and genotyping by Linear Array and APTIMA was performed as reflex testing of index liquid based cytology (LBC) and compared to repeat cytology. Women who developed cervical intraepithelial neoplasia grade 2 or worse (CIN2+) were identified via medical records and Stockholm Oncology Center.

Results: Nine of 25 (36%) women in the ASCUS group, and 64 of 180 (36%) women in the LSIL group developed CIN2+ during follow-up. 162 (74%) women were APTIMA-positive. APTIMA had the highest sensitivity to predict CIN2+ and CIN3+ in the ASCUS (77.8% and 100%) and LSIL (78.1 and 75.8%) groups, although specificity was insufficient (<50%). HPV16 DNA testing and repeat cytology were more specific than APTIMA.

Conclusion: The results of this population-based study with comprehensive follow-up, support the use of APTIMA as a triage test for HR HPV positive women with ASCUS. More focused investigation is required for women with LSIL.

463.00 PA114 Implementing Cervical Cancer Prevention Program in Latvia

Dace Rezeberga (1), Jana Zodzika (1, 2,3), Irina Jermakova (1), Dace Matule (2)
(1) Riga Stradins University, Dzirciema str 16, Riga, Latvia, Riga East Clinical University hospital, Hipokrata str 2, Riga
(2) ARS Medical company ltd, Skolas str 5, Riga
(3) Center for Disease Prevention and Control, Duntes str 22, Riga

Background Although both primary and secondary cervical cancer prevention has been introduced by the government in Latvia, still in 2012 Latvia had 8th highest morbidity and 5th mortality in Europe and almost half new cases of cervical cancers were diagnosed in advanced stages. Organized, population-based cervical cancer screening program in Latvia was started in 2009, but vaccination against human papilloma virus (HPV) in 2010.
Materials and methods An expert group at the Center for Disease Prevention and Control analyzed the success and failure of implementation of cervical cancer screening program: coverage of the screening population, quality of cytological and histological investigations, organization of colposcopy services, establishment of quality assurance system.
Results Since 2009 mean coverage of target population by invitation is 81%; coverage of target population by smear test - 52%, but compliance to invitation – 21%. There is different cytology material staining method used in Latvia - Leishman's technique, also Bethesda classification is not applied. Compared to other countries, although incidence of abnormal cytologies is comparable, there is a quite big proportion of borderline results which requires high numbers repeat cytologies and colposcopy referrals. Till now cervical cancer screening service providers are fragmented, colposcopy services according the European Colposcopy Federation standards in Latvia started only in 2012.
Conclusions Latvia has wonderful opportunity for cervical cancer restriction as both prophylaxis primary and secondary are available. To reduce morbidity and mortality many improvements according to European cervical cancer prophylaxis quality standards have to be implemented.

191.00 PA115 Predictors of non-participation in Cervical Screening in Denmark

Jenny Hansen Kristensson (1), Bente Braad Sander (1), My von Euler-Chelpin (1), Elsebeth Lynge (1)
(1) Department of Public Health, University of Copenhagen, Øster Farimagsgade 5, Denmark

Background: In Denmark, around 1 out of 4 women do not participate in cervical screening. Little has, however, been reported about the characteristics of non-participants. The purpose of this study was to identify demographic, socio-economic and health care use predictors of non-participation in cervical screening in Denmark.

Methods: A population based register study was undertaken using data from the Central Population Register, the national Pathology Data Bank, and several health care and socioeconomic registers kept by Statistics Denmark. Women aged 25-54 years on 1st of January 2002, living in Denmark during the next 5 years, without a history of hysterectomy were included, N=1,052,447. The associations between the women´s characteristics and non-participation in screening were determined with logistic regression and odds ratios (OR) were mutually adjusted for all women's characteristics.

Results: Main predictors of non-participation were: no contact with dental services compared to any contact, OR: 2.36 (95% CI: 2.34-2.39), 0-1 contacts with a general practitioner compared to women with >1 contact, OR: 1.75 (95% CI: 1.74-1.77), age 50-54 compared to age 25-29, OR: 1.98 (95 % CI: 1.95-2.02), primary school education only compared to a secretarial/sales education, OR: 1.53 (95% CI: 1.50-1.56), non-married compared to married, OR: 1.49 (95% CI: 1.47-1.51, and foreigners compared to Danes, OR: 1.32 (95% CI: 1.29-1.34).

Conclusion: A 1.3-2.4-fold difference in odds of non-participation in cervical screening in Denmark was found across various population sub-groups. Increased screening compliance among these groups could help decrease the overall high incidence of cervical cancer in Denmark.

31.00 PA116 Combination of Diane-35 and metformin to treat early endometrial carcinoma in PCOS women with insulin resistance

Ruijin Shao (1), Xin Li (1,2), Håkan Billig (1)
(1) Department of Physiology/Endocrinology, Institute of Neuroscience and Physiology
(2) Department of Gynecology, Obstetrics and Gynecology Hospital of Fudan University

Background Young women with polycystic ovary syndrome (PCOS) have a high risk of developing endometrial carcinoma. There is a need for the development of new medical therapies that can reduce the need for surgical intervention so as to preserve the fertility of these patients. The aim of the study was to describe and discuss cases of PCOS and insulin resistance (IR) women with early endometrial carcinoma while being co-treated with Diane-35 and metformin.
Methods Five PCOS-IR women who were scheduled for diagnosis and therapy for early endometrial carcinoma were recruited. The hospital records and endometrial pathology reports were reviewed. All patients were co-treated with Diane-35 and metformin for 6 months to reverse the endometrial carcinoma and preserve their fertility. Before, during, and after treatment, endometrial biopsies and blood samples were obtained and oral glucose tolerance tests were performed. Endometrial pathology was evaluated. Body weight (BW), body mass index (BMI), follicle-stimulating hormone (FSH), luteinizing hormone (LH), total testosterone (TT), sex hormone-binding globulin (SHBG), free androgen index (FAI), insulin area under curve (IAUC), and homeostasis model assessment of insulin resistance (HOMA-IR) were determined.
Results Clinical stage 1a, low grade endometrial carcinoma was confirmed before treatment. After 6 months of co-treatment, all patients showed normal epithelia. No evidence of atypical hyperplasia or endometrial carcinoma was found. Co-treatment resulted in significant decreases in BW, BMI, TT, FAI, IAUC, and HOMA-IR in parallel with a significant increase in SHBG. There were no differences in the FSH and LH levels after co-treatment.
Limitations and reason for caution Number of patients is low. Given the retrospective design of this trial, results must be interpreted with caution. Future randomized trials with a larger **sample** size are needed to confirm our findings.
Conclusions Combined treatment with Diane-35 and metformin has the potential to revert the endometrial carcinoma into normal endometrial cells in PCOS-IR women. The cellular and molecular mechanisms behind this effect merit further investigation.

437.00 PA117 Preoperative management of ovarian cancer patients

Christina Blach Soerensen (1), Lene Seibaek (1), Lone Kjeld Petersen (1)
(1) Department of Gynaecology and Obstetrics, Aarhus University Hospital, Denmark

Background: Approximately 450 Danish women are diagnosed with ovarian cancer annually. Cytoreductive surgery before chemotherapy remains the cornerstone in treatment. The 5 - year survival is 40%. Among predictors of mortality are comorbidity. (49%) and time to chemotherapy (TTC), which correlates to comorbidity, perioperative complications and extent of surgery. We assume successful extensive surgery outcome may be associated with preoperative handling of comorbidity, although it has never been explored.
Objective: To reveal i) the prevalence of comorbidity among ovarian cancer patients ii) their need for further preoperative medical investigations or adjustments iii) complications
Methods: This is a descriptive study on 41 women enrolled consecutively in 2010 in a preoperative supportive care program, including specialist management of comorbidity, offered to all women suspected of advanced ovarian cancer. Exclusion criterias were dementia, psychiatric disease or those whom didn't understand Danish. Data on comorbidity, American Society of Anesthesiologists classification (ASA), medical actions, and complications were collected.
Results: 56 % of the patients had comorbidity (27% had hypertension, 15% had thyroid disorder). 30% of ASA 1 and almost 60% of ASA II-III had further examinations, blood transfusions, and were otherwise optimized in their medication or vital status. Regardless of ASA group, 30% had complications.
Conclusion: Preoperative management of general health and comorbidity may improve the perioperative course in advanced ovarian cancer patients. The high rate of comorbidity and interventions in this pilot study suggests a role for preoperative assessment. However, endpoint effect in terms of improved survival remains to be shown.

61.00 PA118 Increased cancer incidence among relatives of Swedish endometrial cancer patients.

Gerasimos Tzortzatos (1), Ofra Castro (1), Emma Tham (2), Kristina Gemzell-Danielsson (1), Annika Lindblom (2), Miriam Mints (1)
(1) Department of Obstetrics and Gynaecology, Karolinska University Hospital
(2) Department of Clinical Genetics, Karolinska University Hospital

Objective: Endometrial carcinoma (EC) represents 5,1% of all female malignancies. 90% of cases occur in women >50 years. The incidence of EC is up to 20% before menopause and up to 5% before age 40 years. First-degree relatives with a family history of EC may have an increased risk of the disease, especially at younger (<55y) age and /or with a history of colorectal cancer (1,2). A significant clustering for all cases of type I EC even in second and third degree relatives has been reported (3). We examined the possibility of any association between history of EC and other selected cancers in first, second and third- degree relatives .

Materials and methods:
481 of 890 eligible women with EC undergoing surgery at Karolinska University Hospital, Stockholm, Sweden (2008 -2012), were included in the study. Family history was obtained and diagnoses were confirmed via the regional cancer registry. Pedigrees were analyzed . 95% confidence intervals (CI) were calculated. We compared the relative frequencies of different cancers in our population to the general population in 1970 and 2010. Malignancies with a significant difference in proportion in both years were considered overrepresented.

Results:
Tumours of the endometrium, were overrepresented. Cancers of the urinary tract, rectum, and malignancies of the lymphoproliferative system were present in a smaller proportion of the study than in the general population (table 1).

Conclusion: EC shows an overrepresentation among relatives of patients with endometrial cancer. New studies are needed to identify new genes and putative cancer associated syndromes in families of EC-patients.

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95.00 PA119 Screening for germline PTEN mutations in Cowden syndrome-like families among uterine cancer patients.

Gerasimos Tzortzatos (1), Christos Aravidis (2), Annika Lindblom (3), Miriam Mints (1), Emma Tham (3)
(1) Department of Obstetrics and Gynecology, Karolinska Institutet, Karolinska Univesity Hospital, Sweden
(2) Department of Clinical genetics ,Akademiska Hospital, Uppsala University.Uppsala, Sweden
(3) Department of Clinical Genetics, Karolinska Institutet, Karolinska University Hospital, Sweden

Introduction: Cowden syndrome (CS), an autosomal dominant disorder characterized by multiple hamartomas in the breast, thyroid and endometrium with an incidence of 1:250,000. Germline mutations in the *PTEN* gene-a tumor suppressor- are responsible for 80% of CS-case. Women have a 5-10% lifetime risk of developing endometrial carcinoma. Diagnosis is based on the NCCN criteria- (**table 1)**. *PTEN*- a 9-exon tumor that encodes for a 403 amino acid protein- is located on chromosome 10q23.3. It regulates negatively the *PI3K/AKT/m TOR* pathway affecting various cellular processes and signaling pathways (**figure 1).**
Objective: To examine whether *PTEN* mutations are found in CS- like families with uterine cancer (UC).
Material and methods: UC patients who underwent surgery at Karolinska University Hospital, Stockholm, Sweden (2008 -2012). Pedigrees were analyzed and 58 unrelated CS-like families were identified. CS-like families were defined as at least one endometrial cancer and one breast cancer as well as at least one addition Cowden-associated tumour (endometrial, breast, thyroid, colon or kidney cancer) in the same individual or among family members who are first degree relatives to each other-(**figure 2).** Genomic DNA was subjected to PCR and DNA sequencing analysis for the amplification of all nine exons of PTEN gene **(figure 3 and 4).**
Results: No germline *PTEN* mutations or polymorphisms were identified.
Conclusions: Germline *PTEN* mutations are rare in CS-like families with endometrial cancer. Screening should be restricted to patients that meet the NCCN criteria. Gynaecologists may be alerted of the CS criteria and identify women with suspected CS when UC is the sentinel cancer.

422.00 PA120 Robot-assisted radical hysterectomy (RARH) for cervical cancer: impact on complication and recurrence rates.

Emelie Wallin (1), Angelique Flöter-Rådestad (1), Henrik Falconer (1)
(1) Karolinska institutet

Objective
To assess the impact on complications and oncological outcome when introducing robotic assisted radical hysterectomy for cervical cancer at Karolinska University Hospital in Stockholm.
Methods
In this retrospective analysis, robot-assisted surgery was compared to open surgery. Two time periods were analysed: In group 1 (August 2006 to July 2009, n=119) only abdominal surgery was performed. In group 2 (August 2009 to July 2012, n=83) robotic surgery was gradually introduced (for a total of 55). Patients characteristics, FIGO staging, histology, adjuvant therapy, operation time, hospitalization, lymph node yields, recurrence rate (RR) and disease related mortality was retrieved from medical records. Complications were graded according to the Clavien-Dindo classification.
Results
Patients characteristics, mean operative time, frequency of adjuvant therapy were comparable between the two groups. Blood loss during surgery (554 vs 331 ml), hospitalization (6.4 vs. 4.2 days) and lymph node yield (30 vs 21) were significantly lower in group 2. No differences in complication rates were detected between the two time periods. RR and mortality were comparable between the two groups, although a non-significant increase in RR was observed in group 2.
Conclusions
The introduction of RARH at Karolinska University Hospital was accompanied by reduced hospitalization and blood loss. However, complication rates remained unchanged and lymph node yield was lower after RARH. These data suggest that the learning curve is relatively long and RARH should be reserved for high-volume centers. Although recurrences seem reassuringly stable between the two periods, further follow-up and analysis is warranted to ensure safety of RARH.

419.00 PA121 Investigation of promoter hypermethylation in HPV16 positive squamous intraepithelial lesions

Veronika Holubekova (1), Pavol Zubor (2), Andrea Mendelova (1), Zora Lasabova (1), Jan Danko (2)
(1) Dpt. of Molecular Biology, Jessenius Faculty of Medicine, Martin, Slovakia
(2) Dpt. Obstetrics and Gynecology, Jessenius Faculty of Medicine, Martin, Slovakia

Introduction: DNA methylation is frequently found in long control region of human papillomavirus (HPV). This part of viral genome contains promoter P97 and epithelial cell type-specific enhancer. The E6 and E7 genes of HPV16 are transcribed from promoter P97 and their expression is necessary for malignant progression. In this study we investigated methylation in the promoter region of HPV16 and viral E6 mRNA expression.
Material and Methods: The promoter methylation was investigated in cancer cell line and 45 HPV16-positive cervical specimens: 18 LSIL, 23 HSIL and 4 SCC. DNA was modified by sodium bisulfite, amplified in PCR and HPV16 promoter hypermethylation was analyzed by pyrosequencing. For E6 mRNA quantification was used plasmid DNA with cloned E6 fragment of CaSki cell line
Results: Among the five CpG islands of HPV16 promoter region (nt31, 37, 43, 52 and 58) methylation was found in five CaSki cell lines and in SCC. Methylated CpGs were found in 65.6% of LSIL and 90.4% of HSIL. The percentage of methylation was insignificantly higher in HSIL, except of nt58 (p=0.03419).
Conclusion: We have confirmed the presence of hypermethylation in promoter region of HPV16 and that methylation frequency of CpG sites was higher in HSIL and SCC. No significant correlation was found between the type of lesion and E6 concentration.
Acknowledgement: Study was supported by projects co-financed from EU funds "Increase career opportunities in research and development in field of medical sciences" ITMS code 26110230067 and "Molecular diagnosis of cervical cancer" ITMS code 26220220113.

444.00 PA123 Nausea in early pregnancy and the risk of miscarriage and death

Tina Bergmann Futtrup (1), Jon Traerup Andersen (2)
(1) Herlev University Hospital, Dept. of Obstetrics and Gynecology, Herlev, Denmark
(2) Rigshospitalet University Hospital, Lab. of Clinical Pharmacy, Copenhagen, Denmark

Background
Nausea and vomiting in first trimester pregnancy have previously been linked to reduced risk of miscarriage. The effect on obstetric outcomes is debated.
Methods
We conducted a nationwide cohort study including all women in Denmark with a known conception between 1997 and 2010. The Medical Birth Register was used to identify all records of births, stillbirths, neonatal death, preterm birth and low Apgar score and the National Hospital Register was used to identify all women with a record of miscarriage or induced abortion. Nausea was defined as having redeemed a prescription of an antiemetic during the first trimester. Prescription data was retrieved from the National Prescription Register. An adjusted Cox model was applied to estimate the risk of miscarriage and logistic regression was used to estimate the odds ratio of stillbirth, neonatal death and low apgar score in women treated for nausea within the first trimester.
Results
We identified 1.279.840 pregnancies of which 41.497 women were treated for nausea within the first trimester. The adjusted hazard of having a miscarriage after being treated for nausea was 0.37(CI95%0.35-0.39) compared to unexposed women. There was no increased risk of stillbirth (OR=0.85(CI95%0.71-1.03)), neonatal death (OR=0.84(CI95%0.67-1.05)) or low Apgar score (OR=0.96(CI95%0.93-1.00)). The mean gestational length for women treated for nausea was 277 days compared to 278 days amongst untreated p<0.001.
Conclusions
Women treated for nausea in early pregnancy have a decreased risk of miscarriage. Furthermore, no correlation relates treatment for nausea to low apgar score, stillbirth or neonatal death.

399.00 PA124 Objective assessment of laparoscopic skills using a simulator to establish proficiency levels in a training program for laparoscopic supracervical hysterectomy.

Jeanne Mette Goderstad (1), Erik Fosse (1,2), Marit Lieng (1,2)
(1) Oslo University Hospital
(2) Institute of Clinical Medicine, University of Oslo

Introduction: A training program should be based on proficiency instead of fixed numbers of repetitions or time. Proficiency-based assessment is developed by first having the experts performing the target procedure or a set of skills. The expert scores are used to set the required score for passing the procedure. Simulators are widely accepted as training tools. We use the LapMentor Express, Simbionix virtual reality simulator in this study. Validated simulators have been on the market for more than 10 years. Implementation of VR simulators into surgical programs remains a problem.
Population: Gynecologists and gynecological trainees at 3 hospitals in the Oslo region**.**
Material and Methods: We considered a difference of time of 90 seconds on the procedure tasks on the simulator significant. Power analysis concluded that we need 30 participants with different proficiency level to get a 80% test power and a level of significance of 0.05. The participants perform 10 sets of simulations consisting of 3 basic skill tasks, a salpingectomy and a supracervical hysterectomy. Assessment of skills is based on time, error parameters and economy of movements measured by the simulator.
Results: The inclusion will be completes during March 2014. Results and conclusion will be presented and discussed. .
Conclusions: Will be presented and discussed.

176.00 PA125 Patient´s experience of preimplantation genetic diagnosis (PGD) in Sweden

Katarina Haapaniemi Kouru (1), Elisabeth Syk Lundberg (1), Helena Malmgren (1), Charlotta Ingvoldstad (2)
(1) Department of Molecular Medicine and Surgery, Clinical genetics unit, KI, Stockholm, Sweden
(2) Department of Public Health and Caring Science, Uppsala University, Uppsala, Sweden

Study question: How do couples at high risk of having an affected child experience premplantation genetic diagnosis (PGD)?
Summary answer: Extensive stress is experienced among couples going through PGD, but the psychological stress is lower compared to traditional prenatal diagnosis (PND). The most common reason to choose PGD is objection to abortion. Previous reproductive history did not significantly affect the couples´ experience of PGD.
What is known already: Couples at high risk of having children with a severe genetic disorder are in a difficult reproductive situation and have to choose one of several reproductive options´.
Study design, size, duration: Cohort study, retrospective analysis, 338 couples, 1996-2011.
Participants/materials, setting, methods: Couples that went through PGD in Gothenburg and Stockholm between 1996 to May 2005 (early study) and couples that went through PGD in Stockholm between June 2005 to December 2011 (late study), were asked to fill in a questionnaire. In total, 249 patients answered.
Limitations, reasons for caution: Retrospective analysis, 89% (early study) and 66% (late study) response rate and not possible to know if the non-responder group had the same experience as the responders.
Wider implications of the findings: The information obtained from this study makes it possible to meet the demand of information and support for couples going through PGD and to provide optimal counselling and care for these patients.
Study funding/competing interest(s): The work was supported by grants from the Swedish Medical Research Council and the Stockholm County Council. No competing interest.

304.00 PA126 Peripartum salivary evening cortisol and depressive symptoms: a longitudinal study

Stavros Iliadis (1), Erika Comasco (2), Charlotte Hellgren (1), Sara Sylvén (1), Inger Sundström-Poromaa (1), Alkistis Skalkidou (1)
(1) Department of Women's and Children's Health, Uppsala University, Uppsala,Sweden
(2) Department of Neuroscience, Uppsala University, Uppsala, Sweden

Background
The biology of perinatal depression has not yet been elucidated. Stress and altered hypothalamus pituitary adrenal axis (HPA-axis) response have been implicated in its pathophysiology. However, previous studies show contradictory results on the association between peripartum cortisol levels and depressive symptoms.

Methods
A population-based sample of women (n=284) in Uppsala, Sweden was assessed at pregnancy week 36 and 6 weeks after delivery. Salivary evening cortisol was measured using a salivary cortisol enzyme immunoassay kit, and self-reported depressive symptoms were assessed using the Swedish version of Edinburgh Postnatal Depression Scale (EPDS), with a cut-off of 10 points for detection of significant depressive symptoms.

Results
A valid laboratory salivary cortisol value was retrieved for 275 subjects prenatally and 222 women at six weeks postpartum. Eighteen percent (49/272) of women reported depressive symptoms in late pregnancy, and 18.9% (43/227) at six weeks after delivery. Women with depressive symptoms postpartum had higher evening salivary cortisol levels both in late pregnancy and postpartum, compared to controls (Mann-Whitney *U*-test, significance level $p < 0.05$). The association with postpartum cortisol levels remained statistically significant even after adjusting for plausible confounding factors, when cortisol was introduced as a dichotomous variable comparing highest versus lowest percentile in a multiple logistic regression model (OR=4.5, 95% CI 1.5-14.2).
Conclusions
Women with depressive symptoms postpartum have higher evening salivary cortisol levels both during late pregnancy and at 6 weeks postpartum.
Our results indicate an altered state of the HPA-axis in women with depressive symptoms postpartum.

92.00 PA127 Low risk of intestinal anastomotic leakage in ovarian cancer surgery

Stina Jerlmark (1), Per Nilsson (4), Anna Martling (3), Angelique Flöter Rådestad (2)
(1) Department of Molecular Medicine and Surgery
(2) Department of Women's and Children's Health
(3) Department of Molecular Medicine and Surgery
(4) Department of Molecular Medicine and Surgery

Objective: Anastomotic leakage is a severe complication when bowel resection is performed in surgery for ovarian cancer. Guidance to select patients who would benefit from a proximal diverting stoma is limited and mainly derived from colorectal surgery literature. Our objective was to estimate the risk and identify risk factors for anastomotic leakage in patients with ovarian cancer in order to improve surgical management.
Methods: A retrospective review of all patients operated for ovarian cancer at Karolinska University Hospital between 2004 and 2011 yielded 107 patients who had undergone surgery including intestinal resection and anastomosis. Data was extracted from operative and perioperative charts.
Results: A total of 127 anastomoses were performed in 107 patients (median age 64 years, range 17-83 years). Altogether 30 patients (28%) received a diverting stoma. Furthermore, in patients with a colorectal anastomosis 29 patients (41,4%) received a diverting stoma. Preoperative albumin levels had not been measured in a majority of patients. Anastomotic leakage occurred in six patients (5.6%) overall and in five (7.1%) of totally 70 patients with a colorectal anastomosis. No statistically significant risk factors were identified. Synchronous urological procedures, however, showed a trend (p=0.07) towards increased risk for anastomotic leakage.
Conclusions: This study indicates that the risk of anastomotic leakage in ovarian cancer surgery is low. Extensive surgical procedures might be associated with an elevated risk and, thus, may strengthen indications for a diverting stoma.

242.00 PA128 Mucoadhesive liposomes containing resveratrol for vaginal therapy

May Wenche Jøraholmen (1), Malin Nyland Aalberg (1), Purusotam Basnet (0), Ganesh Acharya (2, 3), Nataša Škalko-Basnet (1)
(1) University of Tromsø, Dep. Pharmacy, Tromsø, Norway
(2) University Hospital of North Norway, Dep. Obst. and Gyn., Tromsø, Norway
(3) University of Tromsø, Dep. Clinical Medicine, Tromsø, Norway

The main objective of this study was the optimization of mucoadhesive liposomes containing resveratrol destined for topical vaginal therapy. Resveratrol is a substance of natural origin, with strong antioxidant and anti-inflammatory activity, and its local administration has shown reduced replication of herpes simplex virus, both in skin (Docherty *et al.*, Antiviral Research, 2004, 61, 19-26) and vagina (Docherty *et al.*, Antiviral Research, 2005, 67, 155-162) of mice. However, resveratrol is poorly water soluble and its bioavailability and stability are rather limited. Hence there is a need for a suitable drug delivery system that not only enables controlled drug delivery, but also protects the drug from environmental and chemical changes. Mucoadhesive drug delivery systems based on liposomes are known to enable the incorporation of poorly soluble compounds, assure their stability and provide the prolonged contact time at the site of drug action, potentially leading to better therapeutic outcome. Liposomes made of phosphatidylcholine and containing resveratrol were prepared by the modified film method and extruded to desired vesicle size. Low molecular weight chitosan was used as a coating polymer. Measured size and zeta potential expressed distinguishable difference between non-coated and chitosan-coated liposomes. The vesicles contained sufficient resveratrol load to assure required drug concentrations. In vitro drug release confirmed the ability of liposomes to provide sustained release of resveratrol, as compared to the control. The system exhibited necessary mucoadhesiveness and is therefore, expected to be retained at the administration site for a required period of time.

462.00 PA129 Cellular subsets of maternal microchimerism in cord blood

Anna Maria Kanold (1), Maruis Kublickas (1,2), Magnus Westgren (1,2), Cecilia Götherström (1)
(1) Division of Obstetrics and Gynecology, Hospital Huddinge and Karolinska Institutet, Stockholm, Sweden
(2) Center For Fetal Medicine, Karolinska University Hospital Huddinge and Karolinska Institutet, Stockholm, Sweden

Background: Maternal microchimerism (MMc) may arise in the offspring of a woman during pregnancy. The consequence is far from completely understood and has been proposed to be both favorable and unfavorable. A suggestion has been made that maternal cells present in cord blood used for stem cells transplantation may exhibit a graft-versus-leukemia effect in the recipient**.** The aim of this study was to evaluate the cellular subset and frequency of maternal cells in cord blood following vaginal deliveries and caesarian sections when the time of clamping was known.
Methodology/Principal Findings: 44 women with normal pregnancies were included in the study. 24 delivered vaginally and 20 by caesarean sections. In cord blood, cellular subsets of CD3+, CD19+, CD33+, CD34+ and CD56+ cells were separated by immunomagnetic beads. A single-nucleotide polymorphism unique to the mother was identified and MMc in different cellular fractions was detected using a quantitative real-time PCR with a sensitivity of 0.01%. 5 of 44 (11%) of the samples contained MMc. The positive fractions were total DNA, CD34+ and CD56+. 4 of the 5 positive samples were from caesarian sections and one was from a vaginal delivery. The median clamping time was 57 seconds.
Conclusions: MMc in cord blood is a moderately common phenomenon and includes both lymphoid and hematopoietic progenitor lineages.

94.00 PA135 Effects of estrogen and testosterone treatment on serotonin transporter binding in the brain of surgically postmenopausal women – A PET study

Ljiljana Kocoska-Maras (1), Hristina Jovanovic (2), Angelique Flöter Rådestad (1), Christer Halldin (2), Jacqueline Borg (2), Angelica Linden Hirschberg (1), Anna-Lena Nordström (2)
(1) Department of Women's and Children's Health, Karolinska Institutet
(2) Department of Clinical Neuroscience, Psychiatry Section, Karolinska Institutet

Background: Sex hormones and the serotonergic system interact in the regulation of mood, learning, memory and sexual behaviour but the mechanisms have not been fully explored. The serotonin transporter protein (5-HTT) regulates synaptic concentrations of serotonin and is a primary target for selective serotonin reuptake inhibitors.
Aim: The aim of the study was to explore how estrogen treatment alone or in combination with testosterone affects 5-HTT binding potentials measured by positron emission tomography (PET) in specific brain regions of postmenopausal women.
Methods: Ten healthy surgically postmenopausal women (years since oophorectomy 7.5 ± 4.0, mean ±SD) underwent PET examinations at baseline, after three months of estrogen treatment (transdermal estradiol 100 µg/24 hours) and after another three months of combined estrogen and testosterone (testosterone undecanoate 40 mg daily) treatment using the radioligand [^{11}C] MADAM developed for examination of the serotonin transporter. Serum levels of sex hormones, mood and cognitive abilities were measured.
Results: The 5-HTT binding potentials decreased significantly in several cortical regions, as well as in limbic and striatal regions after both estrogen treatment alone and combined estrogen/testosterone treatment in comparison to baseline. Symptoms of depressed mood were improved by estrogen treatment and verbal fluency increased by combined treatment with estrogen and testosterone.
Conclusion: The results suggest that treatment with estrogen alone or in combination with testosterone reduces serotonin reuptake in the brain of postmenopausal women, and thereby influences the serotonergic neurotransmission, which support the view that gonadal hormones play a role in serotonin regulated mood disorders.
Key words: PET; Serotonin; Postmenopausal; Depression; Estrogen treatment; Testosterone treatment.

27.00 PA136 Maternal deaths from unsafe abortion can be avoided - with continued support from the Nordics!

Jerker Liljestrand (1), Elizabeth Maguire (2)
(1) Dept. of Social Medicine and Global Health, Lund University
(2) IPAS, Chapel Hill, North Carolina

Background. The five biggest causes of maternal death are the same in most developing countries. One – unsafe abortion - stands out as different from the other four: PPH, eclampsia, obstructed labor and sepsis. Unsafe abortion deaths can be *totally prevented* without obstetric emergency services 24/7. Better access to family planning, including emergency contraception, and access to safe abortion, together prevent unsafe abortion – as in the Nordic countries.
Material and methods. This poster explains why continued support for these measures from the Nordic countries is so important, based on data and information about global trends on abortion-related mortality, policies, and donor behavior.
Results. Deaths from unsafe abortions are declining in many countries, but still cause 13% of maternal deaths globally. This is 47,000 unnecessary deaths annually. Addressing this issue effectively would contribute greatly to reducing MMR worldwide.
Some countries are liberalizing their abortion laws; and medical abortion is changing the panorama. But the vast majority of abortions in Africa and Latin America remain unsafe.
Other than Nordic countries – Denmark, Finland, Norway, and Sweden -- very few donor countries support improved access to safe abortion as part of their overseas development assistance.
Conclusion. Continued support by the Nordic governments to countries and organizations striving to eliminate unsafe abortions, is essential. Members of the Nordic ob-gyn societies are also important, both in international communications and teaching, and as "concerned citizens" in their respective countries.

454.00 PA137 Lithuanian - South Kazakhstan Collaboration in Maternal and Neonatal Health Care

Ruta Nadisauskiene (1), Paulius Dobozinskas (2), Zumagali Ismailov (3), Mindaugas Kliucinskas (1), Vladas Gintautas (1), Ausrele Kudreviciene (1), Kestutis Rimaitis (1), Inna Glazebnaja (3)
(1) Lithuanian University of Health Sciences
(2) JSC Crisis Research Centre
(3) South Kazakhstan Region Department of Health Care

South Kazakhstan region accounts for approximately 25% of all births in Kazakhstan. In 2010, its maternal mortality was 26.4/100 000, while infant mortality stood at 13.6/1 000. In 2010, Department of Health of the region initiated a project with the purpose to reduce maternal and neonatal mortality. There were 3 main strategic tasks of the project: 1) to provide standardized interactive practical courses in obstetrics and neonatology; 2) to introduce clinical protocols and algorithms into daily clinical practice; and 3) to introduce monitoring and audit systems that help to evaluate the quality of the medical services provided. The main purposes of the practical courses were to learn how to work in a team, clearly divide responsibilities, use standardized methods of examination and treatment, and use mnemonics that help better memorize the sequence of actions in emergency situations. More than 800 obstetricians, midwives, neonatologists and neonatal nurses received this training. The practical courses were followed by master classes at maternity and neonatal units. This sequence of training was the most effective way to implement in clinical practice the skills and protocols as well as algorithms which were taught during the interactive courses. Simulation of clinical cases and emergency scenarios helped the managers and staff to identify systemic shortcomings in the managements of maternity care services, adopt the necessary decisions in order to optimize health care processes and make them safer for the patients and the medical team. In 2013 maternal mortality in the region of South Kazakhstan decreased down to 10,2/100 000 and infant mortality to 13.1/1000. This collaboration has given us a unique opportunity to appraise the management of health care services at our own institution and in the country as a whole.

368.00 PA138 A firstborn boy increases the risk of subsequent obstetric complications. A study of 2.3 million second births from the Nordic countries

Laust Hvas Mortensen (1), Sven Cnattingius (2), Mika Gissler (3), Anastasia Iliadou (2), Karin K Melve (4), Rolv Skjærven (4), Anne-Marie Nybo Andersen (1), Henriette Svarre Nielsen (5)
(1) University of Copenhagen, Dept. of Public Health, Copenhagen, Denmark
(2) Karolinska Institutet, Unit of Clinical Epidemiology, Stockholm, Sweden
(3) National Institute for Health and Welfare, Helsiniki, Finland
(4) University of Bergen, Section for Epidemiology, Bergen, Norway
(5) Rigshospitalet, Fertility Clinic, Copenhagen, Denmark

Several studies have shown associations between a first born boy and subsequent risk of still birth, decreased birth weight and preterm birth. This study examines the association between sex of the first born and second born child in relation to the risk of stillbirth, preterm birth, post-term birth, placental abruption and preeclampsia/eclampsia in the subsequent birth in a sample of approximately 2.3 million second births and 0.7 million third births from the Medical Birth Registries of Denmark, Finland, Norway and Sweden 1980-2008. In second births following a first boy rather than a girl the risk was 9 % higher (95% confidence interval: 4%-14%) for still birth, 8% higher (95% confidence interval: 7%-9%) for preterm birth, 9% lower (95% confidence interval: 10%-8%) for post term birth, 4% higher (95% confidence interval: 2%-6%) for preeclampsia/eclampsia, and 9% higher (95% confidence interval: 5%-13%) placental abruption. The underlying mechanisms generating these associations are unknown, but biases and confounding are unlikely to explain these findings. Even though the excess risks are small sex of the first born still explains a moderate part of the risk at the level of the population because the exposure is common. Non tolerated maternal immunization against male specific (H-Y) antigens during the first pregnancy and birth may explain subsequent obstetric complications. Further research should aim to identify such biological pathways, which may increase the understanding of the onset of labor or the pathological processes involved in the studied outcomes.

104.00 PA139 Partial GDF9 duplication and copy number variants in Primary Ovarian Insufficiency (POI)

Ameli Norling (1,2,6), Angelica Hirschberg (2), Kenny Rodriguez-Wallberg (3), Erik Iwarsson (1,6), Anna Wedell (1,4,5), Michela Barbaro (1,4,6)
(1) Department of Molecular Medicine and Surgery, Karolinska Institutet, Karolinska University Hospital, Sweden
(2) Department of Women's and Children's Health, Karolinska Institutet, Karolinska University Hospital, Sweden
(3) Department of Clinical Science, Intervention and Technology, Section for Obstetrics and Gynocology, Karolinska Institute, Sweden
(4) Centre for Inherited Metabolic Diseases (CMMS), Karolinska University Hospital, Sweden
(5) Centre for Molecular Medicine, Science for Life Laboratory, Karoinska Institute, Sweden
(6) Centre for molecular Medicine, Karolinska Institutet, Stockholm, Sweden

Background: Most patients with Primary Ovarian Insufficiency (POI) do not receive a molecular diagnosis despite a significant genetic component in the pathogenesis. The purpose of this study was to investigate if high resolution array-CGH analysis in POI can increase diagnostic rate and identify novel candidate genes.
Methods: DNA samples from 26 patients with POI were analysed by a customized 1M array-CGH platform with whole genome coverage. An MLPA probe set for specific identification of deletions/duplications affecting *GDF9* was developed. An MLPA probe set for identification of additional cases or controls, carrying novel candidate regions identified by array-CGH, was developed. Sequencing of three candidate genes was performed.
Results: Eleven unique copy number changes were identified in a total of 13 patients, including a tandem duplication of 475bp, containing part of the *GDF9* gene promoter region. The duplicated region contains three *NOBOX* binding elements and an E-box, important for *GDF9* gene regulation. This aberration is likely causative of POI. Fifty-four patients were investigated for copy number changes within *GDF9*, but no additional cases were found. Ten aberrations constituting novel candidate regions were detected, including a second *DNAH6* deletion in a patient with POI. Other identified candidate genes were *TSPYL6, SMARCC1, CSPG5* and *ZFR2*.
Conclusions: We describe the first mutation affecting the regulatory region of *GDF9*, identified by the high resolution and customization of the array platform. We can also corroborate *DNAH6* as a candidate gene in POI illustrating the importance of investigating patients with POI for copy number alterations.

112.00 PA140 First trimester dating of pregnancy in Denmark

Ida Näslund Thagaard (1), Lone Krebs (1), Michael Christiansen (3), Ulrik Lausten-Thomsen (2), Torben Larsen (1)
(1) Department of Gynecology and Obstetrics University of Copenhagen Holbæk Hospital
(2) Department of Pediatrics University of Copenhagen Holbæk Hospital
(3) Department of Clinical Biochemistry and Immunology, Statens Serum Institut

Background: To evaluate change of dating pregnancies from second to first trimester and the potential consequences this has on defining pre- and post-term birth.
Methods: A retrospective study of an unselected population of pregnant women comparing estimated day of delivery and factual day of delivery. The analyses include 8551 pregnancies. Five models of estimating gestational age (GA): last menstrual period (LMP), Crown rump length (CRL), Biparietal diameter (BPD) and head circumference (HC) in first and second trimester were tested for accuracy in predicting spontaneous delivery. The mean differences and the percentage of pre, term and post-term pregnancies depending on method were calculated. Liner regression analyses were performed on sum and difference of mean GA.
Results: There were 3 days differences in median gestational age depending on method; HC 279, BPD in second trimester 279, BPD in first trimester 281, CRL 281 and LMP 282 days. The smallest mean difference and SD was seen between CRL and BPD in first trimester. Second trimester measurements defined more preterm and less post-term pregnancies. The first trimester measurements did not differ significantly when defining post-term pregnancies.
Conclusion: CRL and BPD measurements in first trimester are more exact compared to second trimester measurements. There is a small difference in use of CRL and BPD in first trimester dating, which is of no clinical relevance. There is an increase in post-term rates and decrease in preterm rates when changing from second to fist trimester measurements, due to a left movement of distributions in second trimester dating.

339.00 PA141 Pre-pregnancy exercise and risk of pelvic girdle pain in nulliparous women

Katrine Mari Owe (1,2), Elisabeth K. Bjelland (2,3), Britt Stuge (4), Malin Eberhard-Gran (2,3,5), Siri Vangen (1)
(1) Oslo University hospital, Norwegian Resource Centre for Women's Health, Norway
(2) Norwegian Institute of Public Health, Division of Mental Health, Oslo, Norway
(3) Akershus University Hospital, Health Services Research Center, Lørenskog, Norway
(4) Oslo University Hospital, Dep. of Orthopaedics, Oslo, Norway
(5) University of Oslo, Institute of Clinical Medicine, Campus Ahus, Oslo, Norway

Objectives: To examine the association between pre-pregnancy exercise and the risk of pelvic girdle pain (PGP) in pregnancy, and determine if exercising the abdominal- and back muscles pre-pregnancy decreases the risk of PGP. **Methods:** We used data from a population based cohort study including 40,984 nulliparous women with a singleton pregnancy enrolled in the Norwegian Mother and Child Cohort study. PGP defined as combined pain in the anterior pelvis and in the posterior pelvis bilaterally, was assessed by questionnaire in pregnancy week 30. Pre-pregnancy exercise was assessed by questionnaire in week 17. We report adjusted relative risks (RR) with 95% CI for frequencies and modes of exercise pre-pregnancy. **Results:** By pregnancy week 30, 10.5% reported PGP, with the highest proportion among non-exercisers (12.5%). Women exercising 3-5 times a week had a 13% lower risk of PGP in pregnancy (aRR 0.87, 95% CI 0.78-0.97). High impact exercises such as running, jogging, orienteering, ballgames, netball and high impact aerobics was associated with a 14% lower risk of PGP (aRR 0.86, 95% CI 0.74-0.96). Exercising the abdominal- and back muscles ≥3 times a week pre-pregnancy was associated with a 15.0% higher risk of PGP (aRR 1.15, 95% CI 1.04-1.27). In women without a history of low back pain, no association between abdominal- and back muscle exercises and PGP was observed. **Conclusions:** Women exercising regularly and choose high impact exercises before their first pregnancy have a reduced risk of PGP. Our results do not support a preventive effect of abdominal- and back muscle exercise on the risk of PGP.

257.00 PA142 Exposure to violence –a watershed for young women's psychological and physical health

Anna Palm (1), Ulf Högberg (1), Alkistis Skalkidou (1), Ingela Danielsson (2)
(1) Dpt of Women's and Children's Health, Uppsala University, Uppsala, Sweden
(2) Dpt of Clinical Sciences, Obstetrics and Gynecology, Umeå University, Umeå, Sweden

The health of young people is becoming a global health priority. Exposure to violence and adverse mental health can be considered as chronic episodic conditions and vulnerability during adolescence might determine life-course adversities.
Objective: To assess self-reported adverse psychological and physical ill-health in young women exposed to one or several types of interpersonal violence (IPV) compared non-exposed women.
Methods: Young women visiting Youth Health Centres answered a questionnaire constructed from standardized instruments addressing violence exposure, socio-demographics, physical and mental ill-health, alcohol and substance use and sexual orientation. Adjusted odds ratios (AOR) and 95% confidence interval (CI), and attributable risk (AR) was analysed.
Results: Of 1137 women (68% of eligible women), aged 15-22 years, 25% had been victims of one type of IPV and 31% of at least two types of IPV. Women exposed to several types of IPV reported symptoms of ill health at a higher degree than both those not exposed and those exposed to one type of IPV.
Being exposed to IPV had high odds for almost all ill-health outcomes. Women exposed to at least 2 types of IPV had AOR 11.8 (CI 6.9-20.1) for posttraumatic stress symptoms, 6.3 (CI 3.9-10.2) for anxiety symptoms and 8.5 (CI 4.8-15) for self-harm ideation. The attributable risk of IPV accounted for 41% of posttraumatic symptoms, 30% of anxiety symptoms, and 27% of suicide ideation.
Conclusion: Exposure to violence, and especially poly-victimization, is strongly associated with mental ill-health and posttraumatic stress symptoms in young women.

146.00 PA143 Forced Expression of Germ Cell Genes in Human Embryonic Stem Cells

Sarita Panula (1), Cyril Ramathal (2), Meena Sukhwani (3), Jan-Bernd Stukenborg (4), Kazutoshi Takahashi (5), Michiko Nakamura (5), Olle Söder (4), Kyle Orwig (3), Shinya Yamanaka (5), Renee A. Reijo Pera (2)
(1) Karolinska Institute, CLINTEC, Stockholm, Sweden
(2) Stanford University, ISCBRM, Stanford, CA, USA
(3) University of Pittsburgh, Magee-Womens Research Insitute, Pittsburgh, PA, USA
(4) Karolinska Institute, KBH, Stockholm, Sweden
(5) Kyoto University, CiRA, Kyoto, Japan

Infertility affects 10-15 % of couples, with most common cause being few or lack of germ cells. Mature germ cells of the adult, sperm or oocytes, are all originated from a small group of cells that are specified in embryonic development, therefore defects in this early event will have a life long effect. Yet, we know little about the germ cell specification and differentiation in humans. It has been shown, however, that human embryonic stem cells (hESCs) can differentiate to germ cells and that hESCs also share remarkably similar gene expression profile with early germ cells. We utilized these properties of hESCs and studied the effect of specific germ cell markers, DDX4, NANOS3 and DAZL, by forced expression in hESC cultures and within a germ cell niche followed by injection of the cells into the seminiferous tubules of mouse testes.

Our preliminary results indicate a transcriptional interaction between DAZL and NANOS3 expression and a similar change in morphology with over-expression of these genes. We found that over-expressing a single germ cell specific gene in hESCs can alter the expression of several genes, change the morphology and behavior of cells, and also affect the cell cycle structure.

The *in vitro* analysis of germ cell genes in hESCs provides a valuable tool to study the germ cell pathway and together with the results from xenotransplantation to a germ cell environment can add our knowledge of the early events of human germ cell specification and differentiation.

316.00 PA144 User perspectives on the Swedish Maternal Health Care Register

Kerstin Petersson (1), Margareta Persson (2), Margareta Hammarström (3), Marie Lindkvist (4), Ingrid Haglund (5), Carin Nilses (6), Yvonne Skogsdal (7), Ingrid Mogren (8)
(1) Dep, of Clinical Sciences, Obstetrics and Gynecology Umeå University Sweden
(2) Dalarna University, School of Health and Social Studies Falun Sweden
(3) Dep. of Clinical Science and Education Södersjukhuset KI Stockholm Sweden
(4) Umeå School of Business and Economics, Dep of Statistics Umeå University Sweden
(5) Primary Health Care, Parental and Child Health Care Östersund Sweden
(6) Dep. of Research and Development Västernorrland County Council Sundsvall Sweden
(7) Primary Health Care, Maternal Health Care Unit, Örebro Sweden
(8) Dep, of Clinical Sciences, Obstetrics and Gynecology Umeå University Sweden

Background
The Swedish Maternal Health Care Register (MHCR), established in 1999, collects data on pregnancy, delivery and post partum period. Data in MHCR, are entered manually, by midwives in antenatal care (ANC). The aim of this study was to investigate midwives' experiences, opinions and use of MHCR.
Methods
A cross-sectional, questionnaire survey addressing all Swedish midwives in ANC was conducted 2012. The questionnaire included background participant data, preformed statements with 6 response options ranging from zero to five (0="totally disagree" and 5="totally agree"), and free text comments. Parametric and non-parametric methods, and logistic regression analysis were applied, and content analysis was used for free text comments.
Results
Estimated response rate was 53.1%. A major part of participants were positive towards web-application and included variables in MHCR. Midwives exclusively engaged in patient related work tasks, reported that they perceived the register as a strainful worktask (70.3 %) and 44.2 % questioned the benefit of the register. The corresponding figures för midwives also engaged in administrative supervision was 37.8 % and 18.5 %, respectively. Direct transferral of data from medical records to MHCR was emphazised as significant future measure. Further, participants suggested new variables to be included, such as infertility, previous outcomes of pregnancy and delivery, and complications of the index pregnancy.
Conclusions
MHCR was generally valued positively, although perceived as a strainful work task. Direct transmission of data from medical records to MHCR is a prioritized issue. The MHCR is an under-utilized source for operational planning and quality assessment in ANC.

317.00 PA145 Internal Validity of the Swedish Maternal Health Care Register

Kerstin Petersson (1), Margareta Persson (2), Marie Lindkvist (3), Margareta Hammarström (4), Carin Nilses (5), Ingrid Haglund (6), Yvonne Skogsdal (7), Ingrid Mogren (8)
(1) Dep. Of Clinical Sciences Obstetrics and gynecology Umeå University Sweden
(2) Dalarna University School of Health and Social Studies Falun Sweden
(3) Umeå School of Business and Economics, Dep. of statistics Umeå University Sweden
(4) Dep. of Clinical Sciences and Education Södersjukhuset KI Stockholm Sweden
(5) Dep. of Research and Development Västernorrland Couny Counsil Sundsvall Sweden
(6) Primary Health Care, Parental and Child Health Care Östersund Sweden
(7) Primary Health Care, Maternal Health Care Unit, Örebro Sweden
(8) Dep. Of Clinical Sciences Obstetrics and gynecology Umeå University Sweden

Background
The Swedish Maternal Health Care Register (MHCR) is a national quality register that has been collecting data on pregnancy, delivery, and the postpartum period since 1999. The validity of MHCR data has not previously been evaluated. This study investigates degree of coverage and internal validity of specific variables in the MHCR and identifies possible systematic errors.
Methods
This cross-sectional observational study compared pregnancy and delivery data in medical records with corresponding data in the MHCR from nine different Swedish hospitals (N=878). The medical record was considered the gold standard. To evaluate the quality of the initial data extraction, a second data extraction of 150 medical records was performed. Statistical analyses were performed for degree of coverage and for agreement and correlation of data.
Results
Degree of coverage of specified variables in the MHCR varied from 90.0% to 100%. Identical information in both medical records and the MHCR ranged from 71.4% to 99.7%. For more than half of the investigated variables, the information was identical for 95% or more. Probable systematic errors were identified for two variables.
Conclusions
When comparing data from medical records and data registered in the MHCR, most variables in the MHRC demonstrated good to very good degree of coverage, agreement, and internal validity. Hence, data from the MHCR may be regarded as solid when used for evaluation, planning, and decision-making in the Swedish maternal health care services as well as for research.

249.00 PA146 OnabotulinumtoxinA Improves Urinary Incontinence and Quality of Life in Idiopathic Overactive Bladder Patients, Regardless of CIC Use or UTI Status

Karel Everaert (1), J Gruenenfelder J (2), H Schulte-Baukloh H (3), S Guard (4), Y Zheng (5), D Sussman (6),
(1) Ghent University Hospital, Gent, Belgium
(2) Orange County Urology Associates, Laguna Hil, USl
(3) St. Hedwig-Krankenhaus, Berlin, Germany
(4) Allergan, Ltd, Marlow, UK
(5) Allergan, Inc, Bridgewater, United States
(6) Rowan University School of Osteopathic Medicine, Stratford, United States.

Introduction: Pooled analyses of two onabotulinumtoxinA phase 3 trials evaluated efficacy and quality of life (QOL) outcomes by the use of clean intermittent catheterization (CIC) and the presence of urinary tract infection (UTI).
Methods: Patients received intradetrusor injections of onabotulinumtoxinA 100U (n=557) or placebo (n=548). Proportions of patients with a positive response (condition 'greatly improved' or 'improved') on the Treatment Benefit Scale (TBS), incontinence-QOL (I-QOL) total score, and King's Health Questionnaire (KHQ) domain scores of role, social, physical limitations, and incontinence impact were analyzed by CIC use and UTI status (presence/absence) during the first 12 weeks of treatment. Change from baseline in UI episodes/day was assessed by UTI status. Minimal important differences (MIDs) were +10 and -5 points for I-QOL and KHQ, respectively.
Results: Treatment benefit with onabotulinumtoxinA was not diminished by CIC use (positive TBS responders: 62.9% and 61.7% with and without CIC, respectively). Irrespective of UTI status, onabotulinumtoxinA reduced UI episodes/day versus placebo (-3.01 vs -1.19 episodes/day with UTI; -2.76 vs -0.93 without UTI) and increased the proportion of positive TBS responders (52.5% vs 33.3% with UTI, and 63.8% vs 27.6% without UTI). Improvements >MID were observed with onabotulinumtoxinA in I-QOL and all evaluated KHQ domains, irrespective of CIC use or UTI status.
Conclusion: In idiopathic overactive bladder patients who were inadequately managed by ≥1 anticholinergic, CIC use did not diminish the perception of treatment benefit and QOL improvements with onabotulinumtoxinA. Furthermore, onabotulinumtoxinA reduced UI and improved both perception of treatment benefit and QOL, regardless of UTI status.

352.00 PA147 Medical students' attitudes and perceptions on abortion: a cross-sectional survey among medical interns in Maharastra, India.

Susanne Sjöström (1,2), Birgitta Essén (1), Filip Sydén (1), Kristina Gemzell-Danielsson (2), Marie Klingberg-Allvin (1,2,3)
(1) Department of Women's and Children's Health, Uppsala University, Sweden
(2) Department of Women's and Children's Health, Karolinska Institutet, Sweden
(3) School of Health and Social Sciences, Dalarna University, Sweden

Introduction: Although abortion care as has been an established routine since decades in India, eight percent of maternal mortality is attributed to unsafe abortion. Increased knowledge and improved attitudes among health care providers have a potential to reduce barriers to safe abortion care by reducing stigma and reluctance to provide abortion. Previous research has shown that medical students' attitudes can predict whether they will perform abortions. The objective of our study was to explore attitudes toward abortion among medical interns in Maharastra, India.

Study Design: A cross-sectional survey was carried out among 1,996 medical interns in Maharastra, India. Descriptive and analytical statistics were used to interpret the study instrument.

Results: Almost one quarter of the respondents considered abortion to be morally wrong, one fifth did not find abortions for unmarried women acceptable, and one quarter falsely believed that a woman needs her partner or spouse's approval to have an abortion. Most participants agreed that unsafe abortion is a serious health problem in India. A majority of the respondents rated their knowledge of sexual and reproductive health as good, but only 13% had any clinical practice in abortion care services.

Conclusion: Disallowing attitudes toward abortion and misconceptions about the legal regulations were common among the surveyed medical students. Knowledge and attitudes toward abortion among future physicians could be improved by amendments to the medical education, potentially increasing the number of future providers delivering safe and legal abortion services.

338.00 PA148 The association of maternal-placental syndrome and cause-specific mortality in a high-risk cohort of women with systemic lupus erythematosus

May Ching Soh (1), Catherine Nelson-Piercy (1), Fadia Dib (1), Henry Nisell (2), Magnus Westgren (2), Lesley McCowan (3), Dharmintra Pasupathy (1)
(1) Women's Health Academic Centre, King's College London, United Kingdom
(2) Department of Clinical Science, Intervention and Technology Karolinska Institute, Sweden
(3) University of Auckland & National Women's Health, Auckland, New Zealand

Background:
In unselected populations, pregnancy-related complications linked to maternal-placental syndrome (MPS) are associated with cardiovascular death. Women with systemic lupus erythematosus (SLE) are at a high risk of cardiovascular death. However, it is unknown whether similar associations exist in women with SLE; or if the underlying inflammatory disease itself may independently affect the cause of death.

Aim:
To determine the primary cause of death in women with SLE in relation to MPS.

Methods:
Women with SLE were identified using linked data from the Medical Birth Register, National Patient Register and Cause of Death Register from Sweden (1973-2011). MPS was defined as all hypertensive disorders of pregnancy, small for gestational age infant, placental abruption or intrauterine death. Cardiovascular death encompassed death due to coronary artery disease, stroke and peripheral vascular disease.

Results:
There were a total of 12,702 women with SLE of whom 3,977 (31.3%) had a registered birth. Among women who had given birth, 343 (8.6%) had died. MPS affected 38.3% of women who had died. There was a trend towards a difference in the distribution of cause-specific mortality by history of MPS (p=0.08). This trend was explained by the difference in the prevalence of cancer-related deaths. Furthermore, accounting for difference of presence of maternal SLE at the time of pregnancy, we did not observe an increased risk of cardiovascular death (p=0.36).

Conclusion:
In contrast to an unselected population, a history of MPS in women with SLE was not associated with an increased risk of cardiovascular death.

154.00 PA149 Poster Presentation Human embryonic stem cells – a powerful tool against eye disease

Sonya Stenfelt (1), Liselotte Antonsson (1), Alvaro Plaza Reyes (1), Theresa Mader (1), Fredrik Lanner (1), Anders Kvanta (2), Outi Hovatta (1)
(1) Karolinska Institutet, CLINTEC, Stockholm, Sweden
(2) Karolinska Institutet, CNS, Stockholm, Sweden

The objective of this work is to develop a safe and efficient cell therapy for advanced dry macular degeneration, i.e. geographic atrophy, the most common cause of vision loss in people over 55, by transplanting retinal pigment epithelial (RPE) cells differentiated from human embryonic stem cells (hESC). For this we differentiate hESC lines, derived and cultured on recombinant human laminin, under fully chemically-defined and animal substance-free conditions, into RPE. Preliminary results show that our hESC-RPE cells exhibit the characteristic cobblestone morphology, pigmentation and express RPE-specific markers. Apart from optimizing with culture and freeze/thawing conditions for these cells, new methods are being developed for sorting of hESC-RPE according to the degree of maturation. By this we hope to determine the optimal timing and conditions for transplantation as well to predict the survival and function of hESC-RPE cells post-transplantation. The cell function is being characterized both in vitro and in vivo in preclinical models. In parallel, a cohort of patients with bilateral well-defined geographic atrophy has been established and will be followed by advanced macular imaging methods. From these patients, phase 1 clinical trials will be conducted testing the safety and efficacy of hESC-RPE transplantation in suspension or in conjunctions with injectable biomaterials.

439.00 PA150 Molecular Profile of Histological Normal Breast Epitelium in Pregnant Woman with Breast Cancer

Pavol Zubor (1), Jozef Hatok (2), Petra Moricova (1), Karol Kajo (3), Pavol Slavik (3), Jan Danko (1)
(1) Dpt. Obstetrics and Gynecology, Jessenius medical faculty, Martin, Slovakia
(2) Dpt. Medical Biochemistry, Jessenius medical faculty, Martin, Slovakia
(3) Dpt. Pathology, Jessenius medical faculty, Martin, Slovakia

Objective: Breast cancer during pregnancy (BCP) is rare and is associated with controversies about its biology and prognosis. In line with this we hypothesized that gene expression profile in histologically normal epithelium (HNEpi) of pregnant women is altered and could harbor specific genetic abnormalities predisposing breast tissue cells to develop malignancy. Thus, we analyzed gene expressions in HNEpi samples from pregnant women with breast cancer in order to establish its changes and value as potential diagnostic marker for cancer development.
Methods: We evaluated 84 genes in hormone positive Luminal type (A/B) of BCPs and tumor surrounding HNEpi by qRT-PCR Array. Prognostic and predictive parameters were assessed by H&E, immunohistochemistry and in-situ hybridization.
Results: Fifty-five genes with at least a 2-fold over-expression fold, showing extremely high (65.5%) deregulation rate, were differentially expressed between Luminal breast carcinomas tissue and tumor surrounding HNEpi in pregnancy. Of them 58.2% (32) were deregulated more than in 10-fold rate. Except CCNA2, CDH1 and VEGFA, all genes changes were associated with over-expression in HNEpi. The highest overexpression (above 20-fold) was detected for KIT, SLC7A5, and SPRR1B ($p<0.05$), genes related to hormonal activity (ESR1, ESR2, PGR - overexpression above 35-fold; $p<0.001$), immune regulation (TGFα, IL2RA, C3 - overexpression above 58-fold; $p<0.001$), and apoptosis (p53, BCL2, FOSL1, FLRT1). The ontological gene analyses revealed major deregulation in functional genes associated with cancer prognosis and estrogen signaling pathway.
Conclusions: The molecular profiling in HNEpi of breast tissue in women with luminal type of breast cancer during pregnancy revealed extremely high rate of gene expression abnormalities that may represent potential markers of increased risk for BC.

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129.00 PA151 Projected Cost-Effectiveness of Repeat High-Risk Human Papillomavirus Testing using Self-Collected Vaginal Samples in the Swedish Cervical Cancer Screening Program

Ellinor Östensson (1), Ann-Chatrin Hellström (2), Kristina Hellman (2), Inger Gustavsson (3), Ulf Gyllensten (3), Erik Wilander (4), Niklas Zethraeus (5), Sonia Andersson (1)
(1) Department of Women's and Children's Health, Division of Obstetrics and Gynecology
(2) Gynecological Oncology, Radiumhemmet, Department of Oncology, Karolinska Hospital
(3) Department of Immunology, Genetics and Pathology, Rudbeck Laboratory,Uppsala University
(4) Department of Pathology and Cytology, Department of Women's and Children's Health
(5) Medical Management Center (MMC), Department of Learning, Informatics, Management and Ethics, Karolinska Institute, Sweden

Objective. Human papillomavirus (HPV) testing is not currently used in primary cervical cancer screening in Sweden, and corresponding cost-effectiveness is unclear. From a societal perspective, to evaluate the cost-effectiveness of high-risk (HR)-HPV testing using self-collected vaginal samples. Design. A cost-effectiveness analysis. Setting. The Swedish organized cervical cancer screening program. Methods. We constructed a model to simulate the natural history of cervical cancer using Swedish data on cervical cancer risk. For the base-case analysis we evaluated two screening strategies with different screening intervals: (i) cytology screening throughout the woman's lifetime (i.e. "conventional cytology strategy") and (ii) conventional cytology screening until age 35 years, followed by HR-HPV testing using self-collected vaginal samples in women aged 35 years (i.e. "combination strategy"). Sensitivity analyses were performed, varying model parameters over a significant range of values to identify cost-effective screening strategies. Main outcome measures. Average lifetime cost, discounted and undiscounted life-years gained, reduction in cervical cancer risk, incremental cost-effectiveness ratios with and without the cost of added life-years. Results. Depending on screening interval, the incremental cost-effectiveness ratios for the combination strategy ranged from €43 000 to €180 000 per life years gained without the cost of added life-years, and from €74 000 to €206 000 with costs of added life-years included.
Conclusion. The combination strategy with a 5-year screening interval is potentially cost-effective compared with no screening, and with current screening practice when using a threshold value of €80 000 per life-years gained.

14.00 PB157 Fetal Growth in Pregnancies Conceived after Gastric Bypass Surgery in Relation to Surgery-to-Conception Interval: A Danish National Cohort Study

Lone Nikoline Nørgaard (1), A C Roslev Gjerris (1), I Kirkegaard (2), J F Berlac (3), A Tabor (4,5)
(1) Dep of Obstetrics and Gynecology, Hillerød Hospital, Denmark
(2) Department of Obstetrics and Gynecology, Aarhus University Hospital, Denmark
(3) Dep of Obstetrics, Copenhagen University Hospital Rigshospitalet , Denmark
(4) Center of Fetal Medicine, Dep of Obstetrics, Copenhagen University Hospital, DK
(5) Faculty of Health Sciences, University of Copenhagen, Denmark

OBJECTIVE: To describe early and late fetal growth in pregnancies conceived after gastric bypass surgery in relation to time from surgery to conception of pregnancy.
METHODS: National cohort study on 387 Danish women, who had gastric bypass surgery prior to a singleton pregnancy in which first trimester screening was performed between January 2008 and June 2011. Data were derived from national registers (Danish National Registry of Patients and Danish National Birth Registry, Pregnancy Complications and Abortion - clinical quality database (PreCAb) and the Danish Fetal Medicine Database). Main outcome measures were "fetal growth index" expressed as observed versus expected increase in fetal size between first and second trimester ultrasound biometries and the observed versus expected birthweight according to gestational age (GA) in relation to the time from surgery to conception.
RESULTS: The surgery-to-conception interval ranged from 3 to 1851 days with a mean value of 502 (SD, 351) days. The mean "fetal growth index" was 0.99 (SD, 0.02) days/day, which was significantly lower than in the background population (mean, 1.04 (SD, 0.09) days/day, $p<0.0001$). The proportion of infants being small for gestational age was 18.8 % and the proportion of large for gestational age infants was 6.7 %. The correlation coefficients between surgery-to-conception time and "fetal growth index" and birthweight according to GA were 0.01 ($p=0.8$) and 0.04 ($p=0.4$), respectively.
CONCLUSION: Fetal growth index was lower than reported in the background population. No correlation was found between the surgery-to-conception interval and fetal growth in pregnancies conceived after gastric bypass surgery.

289.00 PB158 Behavioural problems in 7 year old children born post-term

Annette Wind Olesen (1), Jørn Olsen (2), Jin Liang Zhu (2)
(1) Department of Obstetrics and Gynaecology, Lillebaelt Hospital, Denmark
(2) The Danish Epidemiology Science Centre, Aarhus University, Denmark

Objective: To study behavioural problems at the age of seven in a Danish population of children born post-term.
Design: Cohort study.
Setting: The Danish National Birth Cohort; children born from 1997 to 2003.
Population: Data were obtained from a cohort of about 100,000 pregnancies. We identified all singletons born in gestational week 39-45 and then restricted to children whose mothers filled out a Strength and Difficulties Questionnaire (SDQ) when the children were seven years of age. The SDQ included emotional symptoms, conduct problems, hyperactivity, peer problems and pro-social behavior. Scoring was based on present standards. The remaining study population constituted 36 204 singletons (22 863 born at term and 13 341 born post-term).
Methods: Logistic regression was used to calculate odds ratios of abnormal SDQ scores adjusted for confounding factors.
Main outcome measures: Abnormal SDQ scores.
Results: There was no overall difference between abnormal SDQ scores for post-term born children compared to children born at term. Having a peer problem was the only category with significantly higher abnormal SDQ score among children born post-term. There was a tendency towards higher abnormal scores with increasing gestational age at delivery, but the results were not statistically significant.
Conclusions: We found no indication of more behavioural problems in children (girls or boys) born post-term.
Keywords: SDQ, gestational age, post-term, long-term outcome, Danish National Birth Cohort

374.00 PB159 Placental chorangiomas: association to pregnancy hypoxia

Nikos Papadogiannakis (1), Meeli Sirotkina (1), Magnus Westgren (2)
(1) Department of Pathology, Karolinska Institutet and Hospital, Stockhoml, Sweden
(2) Center of Fetal Medicine, Karolinska Institutet and Hospital, Stockhoml, Sweden

Background: Chorangiomas (CAs) are the commonest placenta tumor. Histologically they are capillary hemangiomas. Large CAs are associated to pregnancy complications such as fetal hydrops, growth restriction and death. The significance of small CAs is unknown as is the origin of all CAs. Sporadic studies have suggested some connection to preeclampsia, diabetes and multiple gestation. Material and method: Retrospective cohort of 170 CAs from the archived placental material at the Section of Perinatal Pathology, Karolinska Hospital between 1996-2011. Also, 340 placentas without CAs, matched to the cases for gestational age, singleton or multiple pregnancy and fetal/neonatal outcome. Re-reviewing of placental histopathology was performed by two senior perinatal pathologists, with focus on the morphologic profile of large versus small CAs and placental signs of hypoxia. Clinical data was obtained from the medical records. Preliminary results show that: a) 43% of CAs are < 1 cm (microscopic); 46% ≥ 1-4 cm and 11% > 4cm in diameter (large CAs), b) CAs in singleton (n=121) and multiple pregnancy (n=49) placentas showed similar histological features, c) singleton placentas with CAs showed significant increase in signs of hypoxia, but also higher amounts of large and immature placentas. In contrast, placentas from multiple pregnancy did not differ from the controls. d) preeclampsia was overrepresented in pregnancies with CAs (approximately 33%), with an average diameter 11,8 mm. Conclusion: The results support the hypothesis of a hypoxia-driven origin of CAs and verify the impression that multiple pregnancy is sufficient per se to induce a hypoxic environment in the placenta.

384.00 PB160 Metformin treatment compared to insulin treatment in GDM does not alter maternal weight or glucose tolerance 6-8 weeks after delivery.

Outi Pellonperä (1), Kristiina Tertti (1), Ulla Ekblad (1), Tapani Rönnemaa (2)
(1) Department of Ob & Gyn. Turku University Central Hospital, Turku, Finland
(2) Department of Internal MedicineTurku University Central Hospital, Turku, Finland

Introduction: Metformin can be used as an alternative medication to insulin in the treatment of gestational diabetes mellitus (GDM). There is little information about how medication for GDM affects maternal weight or glucose tolerance after pregnancy. There is evidence that metformin can delay the onset of type 2 diabetes and reduce weight gain in non-pregnant high risk population.
Methods: Pregnant women who had ≥ 2 pathologic glucose values at 2-hour 75g oral glucose tolerance test (OGTT), and needed medication to achieve sufficient glycemic control were randomized at 22-34 gestational weeks to metformin (n =110) or insulin (n =107) treatment until delivery. The groups did not differ in OGTT-values or HbA1c at the time of GDM-diagnosis. Maternal weight and glucose tolerance were measured 6-8 weeks after delivery. Weight was compared to pre-pregnancy weight, and glucose tolerance was evaluated as OGTT and HbA1c.
Results: There were no differences between the metformin and insulin groups in median weight change (p=0.32), HbA1c (p=0.89), or OGTT-values (p > 0.67 in all comparisons) 6-8 weeks after delivery. The median weight change was 1.5kg and HbA1c was 5.5% in the metformin group, and 0.0kg and 5.5% in the insulin group, respectively. Impaired glucose tolerance (WHO criterion) was found in 12.1% in metformin group and 8.4% in insulin group (p=0.48). Only insulin group had cases (n = 3) of overt diabetes.
Conclusion: Relatively short-term treatment with metformin in GDM patients does not affect weight or glucose tolerance 6-8 weeks after delivery compared to insulin.

396.00 PB161 Upper Airway Flow Limitation during Normal Pregnancy

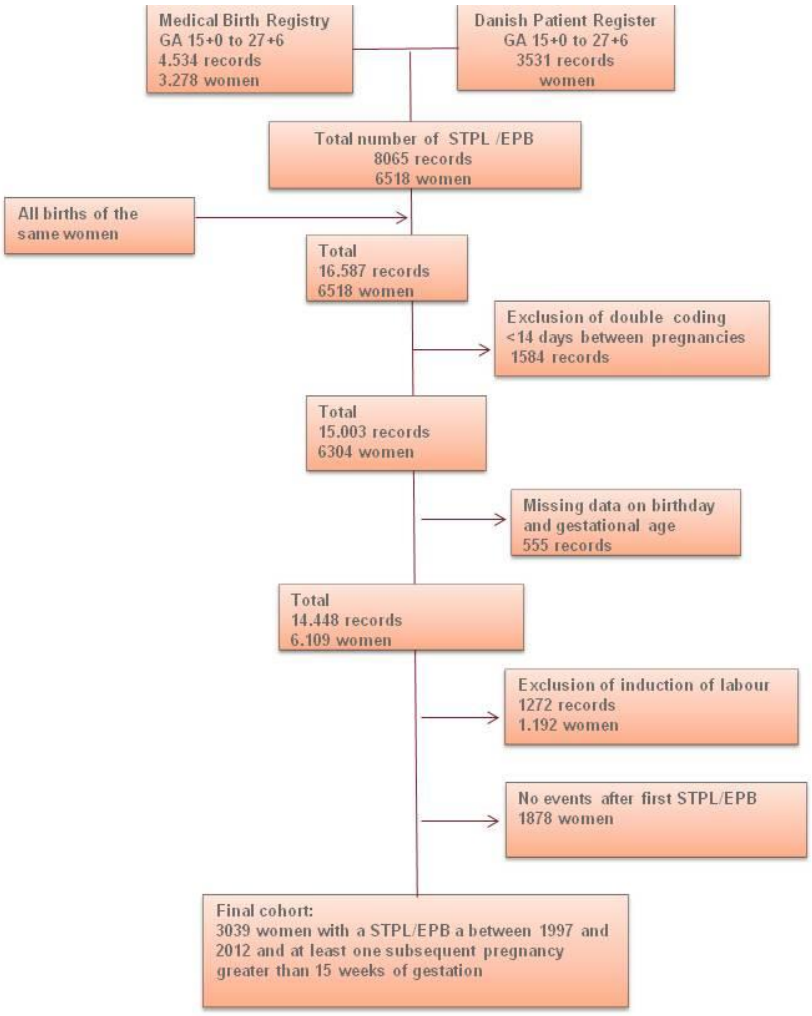
Katariina Lassila (1), Riina Jernman (2), Ville Rimpilä (1,3), Aaro Salminen (1,3), Jukka Uotila (2), Johanna Mäenpää (1,2), Olli Polo (3,4)
(1) School of Medicine, University of Tampere
(2) Department of OB & GYN, Tampere University Hospital
(3) Unesta Research Centre, Tampere
(4) Department of Pulmonary Diseases, Tampere University Hospital

The frequency of snoring increases from 7.9% during the 1st trimester to 21.2% during the 3rd trimester of pregnancy. This increase is associated with sleepiness, higher initial BMI and higher prevalence of edema, but not with weight gain during pregnancy. Self-reported snoring is a surrogate of upper airway flow limitation which can be objectively measured with nasal prongs and transcutaneous carbon dioxide monitor. We characterized the patterns and occurrence of sleep-induced upper airway flow limitation during normal pregnancy.
Sixteen healthy women went through a standard polygraphic sleep recording in a sleep laboratory when pregnant for 31-33 weeks. The respiratory effort was monitored with thoraco-abdominal belts, nasal airflow with nasal pressure cannula and the gas exchange with pulse oximeter and transcutaneous carbon dioxide.
Severe continuous flow-limitation with tcCO2 increases was observed in 3/16 (19 %) women. A new, previously undescribed pattern of oscillating flow limitation with transient tcCO2 changes (Figure) occurred in 9/16 (56 %) women. Overall, 75 % of women presented with sleep-induced upper airway flow-limitation with tcCO2 changes.
Pregnancy markedly predisposes to upper airway flow-limitation during sleep, which may affect maternal or fetal well-being. Flow limitation during sleep may also play a role in the previously described associations between habitual snoring, gestational hypertension and preeclampsia.

336.00 PB162 Successful delivery after vaginal occlusion in addition to cerclage in a trachelectomy patient with recurrent second trimester pregnancy losses

Kirstine Sneider (1), Mette Østergaard Poulsen (2), Jens Langhoff-Roos (3)
(1) Center of Clinical Research, Vendsyssel Hospital / Department of Clinical Medicine
(2) Center of Clinical Research, Vendsyssel Hospital / Department of Clinical Medicine
(3) Department of Obstetrics, Juliane Marie Centre, Rigshospitalet, University of Copenhagen

Introduction Pregnancy outcome after trachelectomy has high risk of complications such as second trimester loss and preterm birth. We report beneficial effect of a procedure of vaginal occlusion in addition to cerclage in a patient with trachelectomy and second trimester pregnancy losses.
Case presentation A 32-year old Danish woman underwent trachelectomy for recurrent cervical severe dysplasia (CIN3). Despite transvaginal intracervical and abdominal cervical cerclage she suffered second trimester pregnancy loss twice. In the first trimester of her third pregnancy after trachelectomy she underwent a procedure of total occlusion of her upper vagina. At 37+0 weeks she delivered a healthy male infant by caesarean section. The vagina was easily restored after the delivery.
Conclusion A simple procedure of vaginal occlusion in addition to cerclage may be effective in trachelectomy patients with a history of second trimester loss or preterm delivery.



213.00 PB163 Adverse pregnancy outcome among women with juvenile arthritis

Katarina Remaeus (1,2-3), Johan Askling (1), Olof Stephansson (1,2,3)
(1) Dpt.of Medicine,Clinical Epidemiology Unit, Karolinska Institutet,Stockholm,Sweden
(2) Dpt. of Women's and Children's Health, Division of Obstetrics and Gynaecology,
(3) Karolinska Institutet, Stockholm, Sweden

Objective: To study the risk of adverse pregnancy outcome, both maternal and fetal, in women with a history of juvenile arthritis (JA).
Method: From the Swedish Medical Birth Register (MBR) 1742771 singleton births between years 1992 and 2009 were included in this register based cohort study. Via linkage to the National Patient Register (PR), we identified 1812 births, among 1143 women with a history of juvenile arthritis (JA). JA was defined as a diagnosis of either juvenile idiopathic arthritis, ankylosing spondylitis, psoriatic arthritis, spondyloarthritis or rheumatoid arthritis, all with onset and diagnosis before the age of 18. 1740959 births were considered unexposed to JA. Logistic regression analysis was performed to calculate odds ratios (OR) with 95 % confidence intervals (CI) for adverse pregnancy outcomes. Estimates were adjusted for year of birth, maternal age and parity.
Results: Juvenile arthritis before the age of 18 was strongly associated with preeclampsia; OR 1.59 (1.27-1.99), moderately preterm birth OR 1.69 (1.41-2.02). Most of the preterm births were iatrogenic OR 2.45 (1.91-3.15). Juvenile arthritis also increased the risk of spontaneous preterm birth OR 1.26 (1.01-1.57), delivery by cesarean section OR 1.65 (1.48- 1.85) and induction of labor OR 1.37 (1.19-1.57). Infants born to mothers with JA did not seem to have higher rates of morbidity or mortality.
Conclusion: Pregnancies with a history of JA have higher morbidity during pregnancy and parturition, indicating that intensified surveillance could be beneficial. Infants to mothers with JA did not seem to have an increased risk of adverse neonatal outcomes.

190.00 PB164 Validation of an OSATS (objective structured assessment of technical skills) for diagnostic skills considering vaginal and perineal lacerations after vaginal birth

Marianne Daniel Rohde (1), Marianne Glavind-Kristensen (2), Sara Kindberg (2), Karl Møller-Bek (2)
(1) Randers Regionshospital
(2) Aarhus University Hospital

Background:
Correct treatment of perineal lacerations depends entirely on correct diagnostics. An OSATS for standardized evaluation of the diagnostic process has been constructed.
Purpose:
Aims of this study are to evaluate intra- and inter-observer reliability of the test (1), and to evaluate whether the OSATS can be used to differentiate between different competence levels (construct validity) (2).
Methods:
The validity of the OSATS (1) is evaluated based on 8 videos of diagnostic procedures each of which is scored twice by three independent evaluators. Data has been processed using Cronbach´s alpha test. Values between 0.7-0.9 represent good reliability and >0.9 as excellent reliability.

The construct validity (2) was tested in videos with 17 midwives and 2 residents. Midwives were divided into 2 groups with 0-5 years of experience and >5 years of experience, respectively. Three evaluators blinded to level of competence have independently scored the videos. Data were tested using Kruskall-Wallis test.
Results:
Intra-rater reliability values are 0.72, 0.91 and 0.95 for the three evaluators. Inter-rater reliability values are 0.87 (1. score) and 0.91 (2. score).
The competences of the three groups differed significantly (p=0.008). Residents score higher than the midwife groups. Midwives with short experience had higher scores than midwives with long experience.
Conclusion:
The OSATS has a good intra- and inter-observer reliability. Moreover, it is a valid tool for evaluating competence level in diagnosing vaginal- and perineal lacerations. The OSATS is expected to be a valuable tool for systematic evaluation of clinical skills and optimization of the education of midwives and residents.

209.00 PB165 Perinatal outcomes after bariatric surgery: A population based matched cohort study

Nathalie Roos (1), Martin Neovius (1), Sven Cnattingius (1), Ylva Trolle-Lagerros (1), Maria Sääf (2), Fredrik Granath (1), Olof Stephansson (1)
(1) Department of Medicine, Clinical Epidemiology Unit, Karolinska Institutet
(2) Department of Molecular Medicine and Surgery, Karolinska Institutet

Objective: To compare perinatal outcomes in births of women with and without bariatric surgery history.

Methodology: From the Swedish Medical Birth Register (1992-2009) and linkage with the Swedish national patient register (1980-2009), a cohort of 1,742,702 singleton births were identified with 2562 mothers with bariatric surgery history. For each post-surgery birth, up to five control births were matched by maternal age, parity, BMI, smoking, educational level, and year of delivery. Secondary control cohorts, comprising women eligible for bariatric surgery (BMI ≥35 or ≥40), were matched for the same factors except BMI. Main outcome measures were preterm birth (<37 weeks), small for gestational age (SGA), large for gestational age (LGA), stillbirth (≥28 weeks), and neonatal death (0-27 days).

Results: Post-surgery births were more often preterm than in matched controls (9.7% *v* 6.1%; odds ratio (OR) 1.7, 95% confidence interval 1.4 to 2.0). The increased risk was confined to women with BMI <35 (P=0.01), indicating effect modification by BMI. Post-surgery births had also an increased risk of SGA birth (5.2% *v* 3.0%; OR 2.0, 1.5 to 2.5) and lower risk of LGA birth (4.2% *v* 7.3%; OR 0.6, 0.4 to 0.7). Comparing post-surgery births with births of women eligible for bariatric surgery, the increased risks for preterm and SGA birth, and the decreased risk for LGA birth, remained. No differences were detected for stillbirth or neonatal death.

Conclusion: Women with bariatric surgery history are at increased risk of preterm and SGA births and should be regarded as a risk group during pregnancy.

239.00 PB166 Oxytocin augmentation and Caesarean delivery among nulliparous women (Robson group 1)

Janne Rossen (1), Kari Klungsøyr (2,3), Thomas Bergholt (4), Ellen Løkkegaard (4), Sten Rasmussen (4), Aura Pyykönen (5), Anna-Maija Tapper (5), Mika Gissler (6,7), Susanne Albrechtsen (8,9), Finn Egil Skjeldestad (10)
(1) Department of Obstetrics and Gynecology, Sørlandet Hospital Kristiansand, Kristiansand, Norway
(2) Department of Global Public Health and Primary Care, University of Bergen, Bergen, Norway
(3) Medical Birth Registry of Norway, National Institute of Public Health, Bergen, Norway
(4) Clinical Research Unit, Department of Obstetrics and Gynecology, Nordsjælland, Denmark
(5) Helsinki University Central Hospital, Department of Obstetrics and Gynecology THL, Finland
(6) National Institute for Health and Welfare, Information Department, Helsinki, Finland
(7) Nordic School of Public Health, Gothenburg, Sweden
(8) Department of Obstetrics and Gynecology, Haukeland University Hospital, Norway
(9) Department of Clinical Medicine, University of Bergen, Bergen, Norway
(10) Women's Health and Perinatology Research Group, Department of Clinical Medicin, Tromsø, Norway

Objective: To report changes in use of oxytocin augmentation and Caesarean delivery (CD) rates in Robson group 1 in Denmark, Finland and Norway from 2000 to 2011.
Design and Setting: Retrospective population-based birth-register study with data from Denmark, Finland and Norway.
Population: Robson 1 comprises nulliparous women with singleton pregnancy, cephalic presentation, gestational week > 37^0, and spontaneous onset of delivery.
Methods: CD rates were determined across four 3-year time-periods by maternal age, use of epidural anaesthesia, and country, using cross tables with chi-square tests for linear trend and logistic regression analyses to adjust for confounders.
Results: Over the study-period the use of oxytocin increased in Norway (44%→48%) and Denmark (40%→46%), but decreased in Finland (64%→49%); $p<0.001$ for all. The proportion of women receiving oxytocin increased significantly with maternal age across countries and time-periods. In women with epidural anesthesia, 55%-81% used oxytocin compared to 29%-40% among women without epidural anesthesia.
The overall CD rate increased from 9%→13% in women who received oxytocin and decreased from 8%→7% in women not receiving oxytocin. The adjusted odds ratio for CD in women receiving oxytocin was 1.47 (95% CI: 1.44-1.49).
Conclusions: The use of oxytocin showed consistent patterns across maternal age, use of epidural anaesthesia, and time-periods in Denmark and Norway. In Finland, the use of oxytocin decreased over the study-period. As indications for the use of oxytocin are the same as for CD in many cases, the stated association may be spurious.

337.00 PB167 Understanding the change in obstetric anal sphincter injury rates

Astrid Rygh (1,2), Torbjørn M. Eggebø (1,5), Hartwig Körner (2,3), Finn Egil Skjeldestad (4)
(1) Department of Obstetrics and Gynecology, Stavanger University Hospital, Stavang
(2) Department of Clinical Medicine I, University of Bergen, Bergen, Norway
(3) Department of GI Surgery, Stavanger University Hospital, Stavanger, Norway
(4) Women's Health and Perinatology Research Group, Department of Clinical Medicine,
(5) National Center for Fetal Medicine, Trondheim University Hospital (St Olavs Hospital)

Background Implementation of "hands-on" routines for perineal protection has been associated with a 50% reduction of obstetric anal sphincter injuries (OASIS) in Norway.
Aim: To explore the associations of clinical factors and OASIS through time-periods with systematic changes of clinical routines.
Method A population-based, case-control study from Stavanger, Norway of 16726 nulliparous women with single, cephalic pregnancy, week ≥37, spontaneous labour and vaginal birth from 1.1.2000 through 31.12.2013. Trends for changes in risk factor distribution and prevalence of OASIS were analyzed in chi-square-test for linear trend, whereas risk factors were analyzed stratified for 4 time-period in logistic regression analysis. The time-periods were characterized by a change to "hands-on" practice, strict policy on mediolateral episiotomy and restrictions in oxytocin augmentation (OA).
Results Over the study years the prevalence of OASIS fell significantly from 9.6% to 3.0%, instrumental deliveries increased (19.7%-26.5%), while birth weights (BW) ≥4000g decreased (14.8%-10.0%). In a modified model of OA (+/-), episiotomy (+/-), operative vaginal delivery (+/-) and BW ≥4000g (+/-), OA was associated with a 60% increase of OASIS for BW <4000g across all time-periods, episiotomies were associated with lower rates of OASIS in instrumental deliveries, and a significant decrease in OASIS was observed for BW ≥4000 g. The major decrease in OASIS took place from 2004-06 to 2007-09 when the "hands-on" scheme was implemented.
Conclusion: The prevention of OASIS can to a large extent be contributed to the "hands-on" technique and by better selection of high risk women to strata of less risk/higher quality of care.

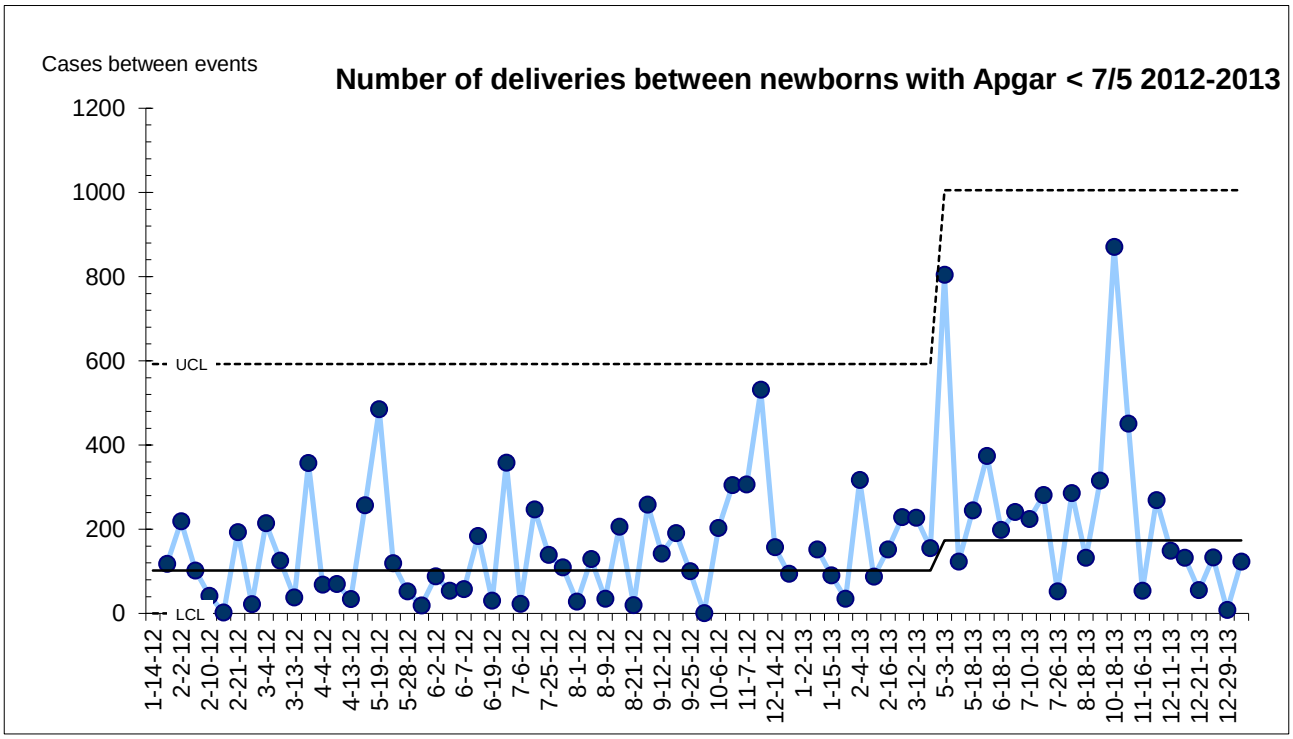
208.00 PB168 Reducing the number of newborns with umbilical cord pH < 7.0 or Apgar score < 7/5 by introducing the national Perinatal Safety Program

Christina Rørbye (1), Anette Kjærbye-Thygesen (1), Charlotte Wilken-Jensen (1), Louise Munk (1), Mette Olivia Larson (1), Mariette Birgitte da Cunha Bang (1), Rikke Hollesen (2)
(1) Dep of Gynecology and Obstetrics, Hvidovre Hospital, Copenhagen, Denmark
(2) Danish Society for Patient Safety, Hvidovre Hospital, Copenhagen, Denmark

Background: In Denmark it is estimated that 10 children every year are born with brain damage due to severe asphyxia during labor. The aim of the national Perinatal Safety Program is to reduce this incidence with 50%.
Aim: By introducing the Perinatal Safety Program at Hvidovre Hospital, the aim of this study was to reduce the incidence of newborns with umbilical cord pH<7.0 or Apgar score < 7/5.
Methods: The Perinatal Safety Program includes a CTG e-learning program and a CTG course with certification of all doctors and midwifes in the labor ward. The program also includes new bundles of care using "check in", "time out" and structured notes

- on admission to the labor ward
- when an oxytocin drip is started
- when an instrumental delivery is performed

The Perinatal Safety Program was introduced at Hvidovre Hospital (7,000 deliveries/year) in April 2013 (details in abstract of Munk et al). All newborns were Apgar scored and umbilical cord pH was measured in 95% of newborns.
Results: Compared to baseline the median number of deliveries between newborns with Apgar score < 5/7 increased from 102.4 to 178.1 (p<0.05) after introduction of the Perinatal Safety Program, while the number of deliveries between newborns with umbilical cord pH< 7.0 was unaffected.
Conclusion: By introducing the Perinatal Safety Program we were able to decrease the incidence of newborns with Apgar score < 5/7. In time, we believe that we will also be able to demonstrate a decrease in the incidence of low umbilical cord pH.



318.00 PB169 Does the method of induction have an influence on the Cesarean section rate in Robson group 2a?

Vibeke Saltnæs Salvesen (1), Ole Jakob Nakling (1)
(1) Lillehammer Hospital

Introduction:
The rate of induction of labor is increasing in all Nordic countries. In Norway different induction methods are used. The hospital of Lillehammer has used dinoproston (Prostin E2) for induction since 2003. Other hospitals use misoprostol (Cytotec). Most hospitals now use cervical ripening with Foley catheter before medication if indicated. The Robson ten classification system allows us to compare Cesarean section (CS) rates within the groups between different obstetric departments. Group 2a consists of induced labors of singleton, cephalic children over 37 weeks.

Material and methods:
Data was collected from The Medical Birth Registry (MFRN) in the period 2007-2013, from all delivery departments in Norway with more than 1000 deliveries (20 hospitals). We compared CS- and operative vaginal delivery-rates between the different hospitals in group 2a, and then investigated the method of induction by consulting the treating hospitals.

Results:
Background population in this period is 411 691 deliveries. Study population (group 2a): 26 782 deliveries. Tabel 1 shows 95% CI for CS-rate in Robson group 2a in different hospitals numbered 1-21. 1: Average, 13: Haugesund, 16: Lillehammer 17: Elverum

Discussion/Conclusion:
Lillehammer is one of few delivery departments which use Prostin E with good results on CS-rate. Most other hospitals use misoprostol and have a higher CS rate except two departments. One of these departments has a higher rate of operative vaginal delivery. Different possible explanations will be discussed.

460.00 PB170 Prolonged second stage of labour and low 5-minute Apgar score - How long is too long?

Maria Altman (1), Anna Sandström (1,2), Sven Cnattingius (1), Olof Stephansson (1,2)
(1) Clinical Epidemiology Unit, Department of Medicine, Solna, Karolinska Institutet
(2) Department of Women's and Children's Health, Division of Obstetrics and Gynecology, Karolinska Institutet

Objective: To investigate prolonged second stage of labour and risk of low 5-min Apgar score after taking maternal and infant characteristics into account.
Design: A population-based cohort study in Stockholm County and Gotland in Sweden, including all deliveries between 2008 and 2012.
Population: A total of 35,017 women who gave birth to their first singleton infant in cephalic presentation at ≥ 37 weeks of gestation with spontaneous onset of labour.
Methods: Data on mother, delivery and infant characteristics were obtained from the Obstetrix medical record system. We used logistic regression analysis to estimate crude and adjusted odds ratios with 95% confidence intervals (CI).

Main outcome measure: 5-min Apgar score <4.
Results: Second stage of labour, defined as time from retracted cervix to birth, was categorised into: 0-59 min (reference), 60-119, 120-179, 180-239 and ≥ 240 minutes. The overall rate for 5-min Apgar score <4 at five minutes was 1.3 per 1000 births. In the groups 180-239 and ≥ 240 minutes OR for 5-min Apgar score <4 was 3.94 (95% CI: 1.50-10.36), and 4.36 (95% CI 1.58-12.03), respectively. After adjustments for maternal age, height, BMI, smoking, gestational age and sex-specific birth weight for gestational age the corresponding ORs were 3.50 (95% CI: 1.30-9.37) and 3.16 (95% CI: 1.08-9.28), respectively.
Conclusion: A second stage of labour above 3 hours increase the risk of low 5-min Apgar score also after taking maternal and fetal characteristics into account. Time from retracted cervix to delivery is important to assess in relation to adverse neonatal outcome.

427.00 PB171 Analysis of diagnoses of postterm vs. full-term pregnancies: a retrospective case-control study

Nanna Sarvilinna (1), Ilona Saarinen (1), Terhi Kalema (2), Patrik Finne (3), Mika Gissler (4), Terhi Saisto (1)
(1) HUCH, Dept of Gynecology and Obstetrics, Helsinki, Finland
(2) HUCH, Dept of Ophthalmology, Helsinki, Finland
(3) HUCH, Dept of Nephrology, Helsinki, Finland
(4) Nat. Inst. of Health and Welfare, Helsinki, Finland&NSPH, Göteborg, Sweden

Objective: To study the risk factors of postterm pregnancy.
Design: Retrospective Case-Control Study.
Setting: University Central Hospital with three separate maternity units.
Population: There were 58,036 deliveries between September 2005 and August 2009. Only singleton live births with spontaneous onset of pregnancy and delivery were included in the study. The gestational age was confirmed in the first-trimester fetal ultrasound scan. 976 cases (postterm pregnancies) and 33,471 controls (full-term pregnancies) with altogether 104,111 diagnoses fulfilled the inclusion criteria and were analyzed.
Methods: Multivariate analysis and adjustment for potential confounders were performed using binary unconditional logistic regression.
Main outcome measures: Diagnoses related to pregnancy and labor and their association with postterm pregnancy.
Results: There were in average 3,48 and 3,01 diagnoses/mother among cases and controls, respectively (Table 1). Primiparity and BMI ≥25 were associated with increased risk of postterm pregnancy. Cases had significantly more secondary uterine inertia, prolonged first stage of labor, obstructed labor due to incomplete rotation of fetal head, fetal stress (CTG- and pH-changes) and umbilical cord compression when compared to controls. Very young primigravidas had a 15,5-fold risk and women with gestational hypertension 86% smaller risk for post-term pregnancy. No association was found with other 21 diagnoses studied.
Conclusion: New data on postterm pregnancy was found. Very young primigravidas have a surprisingly high risk for postterm pregnancy. The increased risk for uterine inertia together with increased risk for prolonged first stage of labor suggest dysfunction in uterine contractility and/or in the regulatory pathways among postterm women.

313.00 PB172 Women's preference for Caesarian Section and actual mode of delivery

Berit Schei (1,2), Thora Steingrimsdottir (3), Hildur Kristjansdottir (4,5), Elsa Lena Ryding (6), Mirjam Lukasse (1,7)
(1) Department of Public Health and General Practice/Norwegian University of Science
(2) Department of Obstetrics and Gynaecology, St.Olav's University Hospital, Trondh
(3) Landspitali University Hospital, Reykjavik, Iceland
(4) Health Directorate, Reykjavik, Iceland
(5) University of Iceland, Faculty of Nursing, department of Midwifery, Reykjavik, Iceland
(6) Department of Obstetrics and Gynaecology, Karolinska Institutet, Stockholm, Sweden
(7) Faculty of Health Sciences, Oslo and Akershus University College of Applied Science, Norway

There is an increased recognition to incorporate pregnant woman's view in decision making on mode of delivery. How this increased autonomy influences the mode of delivery and potentially contribute to the increased CS rates is under debate. Few studies have assessed women's preference during pregnancy, and even fewer studies have assessed the impact of women's preference on actual mode of delivery. The aim of the study was to assess women's preference of CS during pregnancy and explore the impact on actual mode of delivery. An unselected cohort of pregnant women in six European countries (Belgium, Iceland, Denmark, Estonia, Norway, and Sweden, the "Bidens" study) was assessed as to their preferred mode of delivery. Women indicated definitely or probably preference of CS were classified as preferring CS. Actual mode of delivery was identified in birth records or registries. A preliminary analysis of the 6422 women with complete data, showed that 373 women; 5. 8 % reported CS as preferred mode of delivery, highest among women in Iceland and Norway; 6.8 %. Age, parity and education were significantly associated to preference; however, country differences remained statistically significantly after adjustments. Among the women with preference for CS, 259 (69 %) was actually delivered with CS, but only 67 with non-medical indications. Conclusion: Pregnant women's expressed preferences of CS most likely reflect professional advices in line with medical indications.

168.00 PB173 Gestational weight gain and offspring birth weight in women with type 1 diabetes

Anna Lilja Secher (1, 2), Clara B. Parellada (0), Lene Ringholm (1,2), Björg Asbjörnsdottir (1, 2), Peter Damm (1,3,4), Elisabeth R. Mathiesen (1,2 4)
(1) Center for Pregnant Women with Diabetes, Rigshospitalet, Copenhagen, Denmark
(2) Department of Endocrinology, Rigshospitalet, Copenhagen, Denmark
(3) Department of Obstetrics, Rigshospitalet, Copenhagen, Denmark
(4) Faculty of Health and Medical Sciences, University of Copenhagen, Denmark

Aim: We retrospectively evaluated the association between gestational weight gain and offspring birth weight in singleton term pregnancies of women with type 1 diabetes.
Material and methods: One-hundred-and-fifteen consecutive women referred before 14 weeks were classified as underweight (pre-pregnancy BMI <18.5 kg/m^2, n=1), normal weight (18.5-25.0, n=65), overweight (25.0-29.9, n=39) or obese (≥30.0, n=10). Gestational weight gain was categorized as excessive, appropriate or insufficient, according to the Institute of Medicine recommendations for each BMI class. Women with nephropathy or preeclampsia were excluded. Results: HbA1c at 8 and 36 weeks was comparable between women with excessive (n=62), appropriate (n=37) and insufficient (n=16) gestational weight gain (median 6.7 (range 5.6-8.4) vs. 6.5 (5.4-8.3) vs. 6.6 (5.6-8.3) % (p=0.78) and 6.0 (5.1-6.9) vs. 6.0 (4.7-7.1) vs. 6.3 (5.1-7.0) % (p=0.40), respectively) and pre-pregnancy BMI was 25 (18-41) vs. 24 (18-31) vs. 23 (20-30) kg/m^2 (p=0.05). Offspring birth weight and birth weight z-score decreased across the groups (3,681 (2,374-4,500) vs. 3,395 (2,910-4,322) vs. 3,295 (2,766-4,340) g, p=0.02, and 1.08 (-1.90-3.25) vs. 0.45 (-0.83-3.18) vs. -0.02 (-1.51-2.96), p=0.009). Severe neonatal morbidity was similar between the groups. In a multiple linear regression analysis, gestational weight gain was positively associated with offspring birth weight and birth weight z-score when adjusted for pre-pregnancy BMI, HbA1c at 36 weeks, smoking, parity and ethnicity (β=19, p=0.02 and β=0.06, p=0.008, respectively).
Conclusion: Increasing gestational weight gain in women with type 1 diabetes was associated with increasing offspring birth weight independent of glycaemic control and pre-pregnancy BMI.

175.00 PB175 Caesarean Delivery among nulliparous women - Nordic countries 2000-2011

Finn Egil Skjeldestad (1), K Klungsøyr (2,3), T Berholdt (4), E Løkkegaard (4), S Rasmussen (4), R Bjarnadóttir (5), BB Másdóttir (6), A Smarason (7), MC Fagerberg (8), K Gottvall (9,10), K Källén (9,11), A Pyykönen (12), A-M Tapper (12), M Gissler (13,14), S Albrechtsen (15,16).

(1) Women's Health and Perinatology Research Group, Department of Clinical Medicine, University of Tromsø, Tromsø, Norway
(2) Department of Global Public Health and Primary Care, University of Bergen, Bergen, Norway
(3) Medical Birth Registry of Norway, National Institute of Public Health, Bergen, Norway
(4) Clinical Research Unit, Department of Obstetrics and Gynecology, Nordsjællands Hospital, University of Copenhagen, Denmark
(5) The Icelandic Birth Registry and Department of Obstetrics and Gynecology, National University Hospital of Iceland, Reykjavik, Iceland
(6) The Icelandic Birth Registry and Department of Information and Economics, National University Hospital of Iceland, Reykjavik, Iceland
(7) The Icelandic Birth Registry, Reykjavik and Institution of Health Science Research, University of Akureyri, Akureyri, Iceland
(8) Department of Obstetrics and Gynecology, Ystad Hospital, Ystad, Sweden
(9) The Swedish National Board on Health and Welfare, Stockholm, Sweden
(10) Department of Public Health Sciences, Division of Global Health, IHCAR, Karolinska Institutet, Stockholm, Sweden
(11) Institution of Clinical Sciences, Department of Obstetrics and Gynecology, Reproduction Epidemiology, University of Lund, Lund, Sweden
(12) Helsinki University Central Hospital, Department of Obstetrics and Gynecology, Helsinki, Finland
(13) THL National Institute for Health and Welfare, Information Department, Helsinki, Finland
(14) NHV Nordic School of Public Health, Gothenburg, Sweden
(15) Department of Obstetrics and Gynecology, Haukeland University Hospital, Norway
(16) Department of Clinical Medicine, University of Bergen, Bergen, Norway

Objective: To report changes in fractions from Robson groups 1, 2a and 2b to the overall Caesarean delivery (CD) rate in nulliparous women.
Design and Setting: Retrospective population-based birth-register study comprising all Nordic countries from 2000 to 2011.
Population: Robson 1 and 2 comprise nulliparous women with singleton pregnancy, cephalic presentation, gestational week > 37^{+0}, spontaneous onset (R1), induced (R2a) or CD before onset of birth (R2b (planned and emergency CDs)).
Methods: Fractions of the CD rate in R1, R2a and R2b to the overall CD rate in nulliparous women were analysed across 3-year time-periods, age and country in chi-square test for linear trend. Age standardizations of the overall rate and group specific fractions were done with the age structure of the total population as reference
Results: Finland had the highest overall CD rate and the highest fractions of the overall CD rate in R1 and R2b. The overall CD rate increased consistently across country and time-period with increasing maternal age. From the first to the last time-period, the overall CD rate increased more in Denmark (14.0→16.9%) and Norway (11.2→14.5%), than in Sweden (14.6→15.4%) and Finland (17.9→18.6%), whereas a major decrease was observed in Iceland (18.6→14.3%). Iceland had the lowest fractions to overall CD rate in R1 and R2b, and the highest in R2a.
Conclusions: CD rates in nulliparous women differ across the Nordic countries in a consistent way by maternal age and time-period. Iceland has demonstrated a remarkable reduction in overall CD rate in nulliparous women after 2008.

82.00 PB177 Prevalence of anal incontinence one year after the delivery in a cohort of primiparous women and in nulliparous women

Jens A. Svare (1), Bent B. Hansen (1), Gunnar Lose (1)
(1) Dept.of Obstetrics and Gynaecology, Copenhagen University Hospital Herlev

Objective To examine the prevalence of anal incontinence in primiparous women one year after the delivery and in nulliparous women.
Material Women who had their first delivery from 2003-2005. A control group of age-matched nulliparous women.
Methods The primiparous women were recruited 2-3 days after delivery and the nulliparous women were recruited simultaneously. A validated questionnaire was filled in by 796 primiparous women one year after the delivery and by 1377 nulliparous women. Anal incontinence was defined as either flatus incontinence, incontinence for solid stools or incontinence for liquid stools.
Results The prevalence of any anal incontinence was 37% in the primiparous group and 36% in the nulliparous group. Incontinence for solid stools was reported in 4% and 2.5%, respectively (p=0.06). Women with grade 3 or 4 perineal lesions (N = 44) had a significantly higher prevalence of flatus incontinence (48% vs. 25%, p = 0.001) and of any anal incontinence one year after the delivery (55% vs. 36%, p=0.01).The prevalence of any anal incontinence one year after the delivery was similar in women with vaginal delivery (37%) and with cesarean delivery (36%).
Conclusion The prevalence of any anal incontinence one year after the womens first delivery was not significantly different from the prevalence in a group of age-matched nulliparous women. Women with grade 3 or 4 perineal lesions had a significantly higher prevalence of flatus and any anal incontinence. The occurrence of any anal incontinence one year after the delivery was not related to the mode of delivery.

4.00 PB178 Complete obstetric anal sphincter tear and risk of long-term fecal incontinence: a cohort study

Mette Møller Sørensen (1), S Buntzen (1), K M Bek (2), S Laurberg (1)
(1) Surgical Research Unit, Department of Surgery P, Aarhus University Hospital, Aarhus, Denmark
(2) Department of Gynecology and Obstetrics, Aarhus University Hospital, Skejby Hospital

Background: Women with anal sphincter injuries have an increased risk of developing fecal incontinence despite surgical intervention.
Objective: To evaluate the long-term risk of fecal incontinence after primary anal sphincter reconstruction and its impact on quality of life.
Design: Cohort Study
Settings: Aarhus University Hospital.
Patients: Women with complete anal sphincter rupture (exposed) from 1976 - 1991, and a control group of parous women (non-exposed).
Main outcome: Fecal incontinence, Wexner Score, St. Mark's incontinence score, and Quality of Life.
Results: A total of 363 women were included (125 exposed and 238 non-exposed). The mean age was 50.4 years [95%CI: 49.8 - 51.0], with 22.2 years [95% CI: 21.7 - 22.6] of follow-up. 49% of exposed and 74% of non-exposed were continent at the time of follow-up. Complete anal sphincter tear increases the risk of fecal incontinence twofold (RR=2.00; 95%CI: 1.52 - 2.63). No other risk factors were identified. The mean Wexner score was 1.7 [95%CI: 1.3 - 2.1] vs. 1.1 [95%CI: 0.7 - 1.4] (p=0.02), and the mean St. Mark's score was 2.8 [95% CI: 2.1 - 3.4] vs. 1.4 [95%CI: 1.0 - 1.9] (p<0.001) in the exposed and non-exposed, respectively. Severity of fecal incontinence had a significant impact on quality of life independent of exposure.
Limitation: The cohort is relatively young and with a short postmenopausal period limiting the assessment of hormonal status and effect of postmenopausal hormone replacement therapy.
Conclusion: Complete obstetric anal sphincter tear increases the long-term risk of fecal incontinence twofold. When present, the severity of the incontinence symptoms is minor and the risk of incontinence for solid stool is not increased compared to the general population. Anal sphincter rupture is the only independent risk factor for fecal incontinence. The severity of fecal incontinence had the same impact on Quality of life in both groups.

15.00 PB179 Timing of Pregnancy, Timing of Delivery and Non-spontaneous Labour are Risk Markers of Uterine Rupture in Women with a Previous Caesarean Section

Emil Stefors (1), F Paulsen (1), M B Sørensen (1)
(1) Obstetrics and Gynaecology, Odense University Hospital, Odense Denmark

INTRODUCTION: Uterine rupture (UR) is a potentially devastating event in pregnancy and increasing rates of caesarean deliveries render it more prevalent. Antenatal counselling of mode of delivery in a pregnancy after a prior **caesarean** section (CS) is a common occurrence and needs to be evidence based.
METHODS AND MATERIALS: 62 women with symptomatic UR and 134 women without this adverse event were selected from Hospital Data Base at Odense University Hospital and included. Both groups had previously delivered by CS and were historically matched.
RESULTS: A 6 months-interval from CS to conception increased the risk of UR (OR 7.07, p=0.019), whereas a >24 month-interval was protective (OR 0.7, p=0.045). In women whom attempted a vaginal birth, artificial rupture of the membranes and augmentation of labour with oxytocin were both associated with a higher risk of subsequent UR (OR 1.96, p=0.07 and OR 2.36, *p*=0.015). Comparing cases and controls, induction of labour by any method was in itself a risk factor (OR 2.29, p=0.013). However in the sub-group with balloon ripening, the finding was not confirmed (OR 1.51, p=0.40). Delivery after 40 weeks gestation was linked to a higher risk compared to delivery before (OR 2.46, *p*-value 0.005).
CONCLUSION: The importance of an appropriate interval between pregnancies needs to be underlined after CS. The need for elective surgery when spontaneous labour has not commenced at term vs. expectant management needs to be further investigated. Our study does not support postdates induction of labour in women with a previous caesarean section.

16.00 PB180 Does Previous Uterine Surgery Increase the Risk of Uterine Rupture During a Subsequent Pregnancy?

Fredrik Paulsen (1), E Stefors (1), M B Sørensen (1)
(1) Obstetrics and Gynaecology, Odense University Hospital, Odense Denmark

INTRODUCTION: Prior caesarean section (CS) is known to increase the risk of uterine rupture (UR). In contrast, the evidence that other types of gynaecological surgery may be linked to subsequent pregnancy related uterine rupture is limited.
METHODS AND MATERIALS: 62 women with symptomatic UR and 134 women without this adverse event were selected from the Hospital Data Base at Odense University Hospital and included. Both groups had previously delivered by CS and were historically matched. Clinical data and diagnoses were validated by checking electronic patient notes.
RESULTS: Previous uterine surgery was more prevalent among cases (8.1%) with uterine rupture than controls (2.2%, p=0.07). 17.7% of cases and 8.2% of controls had experienced previous termination of pregnancy (p=0.05). The same proportion of cases and controls had suffered a previous miscarriage (30% and 31%, p=0.91). Fibroid changes of the uterus are linked to placental abruption which in this study was more frequently reported in cases than in controls (OR 4.38, p=0.01).
CONCLUSION: Despite the small size of this study, our findings warrant further investigation. Pregestational surgery of the uterus with and without disruption of the myometrium may increase the risk of uterine rupture. Also and despite myomectomy, fibroid changes to the myometrium may increase the risk of abruption and consequent rupture. The established recommendation that only surgery with disruption of the myometrium is linked to an increased rupture risk may need to be re-addressed.

102.00 PB181 Emergency caesarean section due to nonreassuring fetal status and Decision-to-Delivery-Interval (DDI). A quality improvement project

Christian Tappert (1), Runa Heimstad (1)
(1) Department of Obst. and Gyn., St. Olavs University Hospital, Trondheim

OBJECTIVES: The optimal Decision-to-Delivery-Interval (DDI) is discussed in the literature. English guidelines (NICE) conclude that a DDI <30 min for urgent caesarean section grade I can be used to measure the performance of an obstetric unit. For deliveries monitored by CTG + ST-waveform analysis (STAN) it has recently been shown that the risk of an adverse neonatal outcome was significantly lower when DDI was <20 minutes. A baseline registration at our delivery unit in 2012 revealed an unacceptable long DDI when performing emergency caesarean section due to nonreassuring fetal status. The aim of the study was to reduce the DDI to < 20 min.
DESIGN: Quality safety study
SETTING: St.Olavs Hospital, Trondheim University Hospital, Norway
SAMPLE: Emergency deliveries Feb 2014-June 2014
METHODS: The study is part of a patient safety programme in Norway, Sweden and Denmark. The methods used are Deming's model for improvement, Plan-Do-Study-Act-cycle (PDSA) and use of Statistical Process Control (SPC). Before introducing the changes, continuous monitoring of the DDI was performed Nov 2013-Feb 2014.
RESULTS: The quality improvement project will be presented. We will show how the methods were used to introduce different organizational changes at all stages of our emergency caesarean section protocol. We will present the first results of this quality safety study.

293.00 PB182 The impact of a national cardiotocography teaching program; Interpretation skills and the correlation to profession, subspecialty, years of obstetric experience and size of maternity ward.

Line Thellesen (1), Jette Led Sørensen (1), Nina Palmgren Colov (1), Thomas Bergholt (2), Morten Hedegaard (1)
(1) Department of Obstetrics, JMC, Rigshospitalet, University of Copenhagen, Denmark
(2) Department of Gynaecology and Obstetrics, Nordsjaellands Hospital, University of Copenhagen, Denmark

Introduction
To reduce the incidence of hypoxic injuries among newborns a national obstetric intervention was initiated in 2012. As part of the intervention all physicians and midwives working at Danish maternity wards participated in a mandatory standardised cardiotocography (CTG) teaching program.
The aim was to improve CTG interpretation skills and to explore whether interpretation skills were correlated to profession, subspecialty, years of obstetric experience and size of maternity ward.
Method
All participants attended a seven-hour CTG course, consisting of both classroom- and small group teaching. The course addressed foetal physiology, CTG interpretation and clinical management. At the beginning of the course each participant answered 10 out of 30 questions of a validated CTG multiple choice question test (pre-test). At the end of the course participants answered all 30 questions in the test (post-test). Items emphasized CTG interpretation and clinical management. Information on profession, subspecialty, obstetric experience and workplace were obtained during the course.
Results
A total of 1718 (95%) participants answered both pre-test and post-test. Seventy were excluded due to participation in pilot-testing of the test. The remaining 1648 consisted of 1243 (75%) midwives and 405 (25%) physicians.
Using regression analyses it will be examined whether interpretation skills were improved and whether skills were correlated to the selected variables.
Conclusion
This study will clarify if a comprehensive national obstetric intervention has an effect on CTG interpretation skills, and will illuminate whether specific prerequisites influence these skills. Future planned studies will examine the effect of the national intervention on neonatal complications.

78.00 PB183 Methods used for induction of labor & risk of uterine rupture in women with previous cesarean section

Dorthe Louise Ahrenkiel Thisted (1,3), Laust Hvas Mortensen (2), Lone Krebs (1)
(1) University of Copenhagen, Dept. of Gynecology & Obstetrics, Holbæk Hospital, DK
(2) Social Medicine, Dept. of Public Health, University of Copenhagen, Cph., DK
(3) University of Copenhagen. Dept.of Gynecology & Obstetrics, Hvidovre Hospital, DK

Objectives: To estimate the risk of complete uterine rupture in relation to methods used for induction of labor in women planning vaginal birth after cesarean section (VBAC) Materials & Methods: From the Danish Medical Birth Registry (MBR) (1997-2008), using ICD-10 codes, we selected all women recorded with previous cesarean section, singleton, term pregnancy and uterine rupture during labor. Upon review of their medical records, 182 women were validated to have planned a VBAC and experienced a complete uterine rupture. Controls were selected in the MBR as the following two deliveries among women with singleton, term pregnancy, previous cesarean section, planned VBAC and no uterine rupture. Upon review, 291 controls met the above criteria.
Results: Induction of labor was related to complete uterine rupture (OR 2.01, 95 % CI 1.39 – 3.17, p-value 0.004). Use of a double balloon catheter (OR 2.71, 95 % CI 1.09 – 6.74, p-value 0.031) or prostaglandins (OR 2.31, 95 % CI 1.40 – 3.81, p-value < 0.001) imposed an almost equally significant increased risk of uterine rupture, but associations between induction by amniotomy (OR 2.26, 95 % CI 0.83 - 6.14, p-value 0.116) or oxytocin (OR 1.58, 95 % CI 0.45 – 5.54, p-value 0.498) and uterine rupture did not reach statistical significance.
Conclusions: Induction of labor by prostaglandins or a double balloon catheter poses an equally increased risk of uterine rupture. It is most likely that it is induction of labor with an unfavorable cervix and not the method used for induction that is related to uterine rupture.

459.00 PB184 Nordic placenta accretas - Incidence, risk and antenatal awareness.

Lars Thurn (1), Pelle Lindqvist (2), Maija Jakobsson (3), Anna-Maija Tapper (4), Lotte Berdiin Colmorn (5), Jens Langhoff-Roos (6), Mika Gissler (7), Lone Krebs (6), Per Bordahl (8), Inga Bjarnadóttir (9), Karin Källén (10), Karin Gottvall (11)
(1) Department of Obstetrics and Gynecology, Karlskrona, Sweden
(2) Clintec, Department of Obstetrics and Gynecology, Karolinska University,Sweden
(3) Department of Obstetrics and Gynaecology, University Hospital, Helsinki, Finland
(4) Department of Gynecology and Pediatrics, University Hospital, Helsinki, Finland
(5) Department of Gynecologyand Obstetrics, Hvidovre University Hospital, Denmark
(6) Department of Obstetrics and Gynaecology, Holbæk Hospital and University,Denmark
(7) THL National Institute for Health and Welfare, Helsinki, Finland
(8) Department of Obstetrics and Gynecology, Haukeland University Hospital, Bergen
(9) Department of Obstetrics and Gynecology, Landspitali University Hospital,Iceland
(10) Department of Obstetrics and Gynecology, Clinical Sciences Lund, Lund ,Sweden
(11) National Board of Health and Welfare, Stockholm, Sweden

Objective:
To investigate the incidence, estimate risk factors for placenta accreta and assessing the outcome depending on antenatal awareness, in the Nordic countries using a strict definition.
Method:
As part of the prospective Nordic Obstetric Surveillance Study (NOSS), cases with placenta accreta were identified by clinicians and registered in predetermined formula during a 2-year period 2009 to 2011. Results were validated against the National Medical Birth Registers. Main outcome is incidence estimations and differences in antenatal awareness within the study group as well as risk estimation using aggregated National data.
Results:
A total of 252 cases of placenta accreta were identified in the Nordic countries during the studied period. The overall incidence was 0.04%. Women with a previous Cesarean delivery or placenta previa had the highest incidence. The incidence increased with increasing age. Among cases with accreta 49% had a previous caesarean 33% had a previous curettage and 53% had a placenta previa. Vaginal antepartum bleeding occurred in 36% of the cases. Hysterectomy was performed in 57% of the accreta cases. About one-third (31%) of the cases were diagnosed antepartum. This is preliminary data and odds ratios will be presented.
Conclusion:
The incidence in the Nordic countries is ranging between 0.03% and 0.07%. The main risk factors were previous caesarean section, placenta previa and high maternal age. In this study 31% of all accrete were diagnosed before delivery, but we found no benefit in outcome compared to cases where accreta was identified during time of delivery.

447.00 PB185 Vaginal glucose and lactate dehydrogenase levels in the diagnosis chorionamnionitis in women with PPROM

Minna Tikkanen (1), Tarja Myntti (1), Leena Rahkonen (1), Vedran Stefanovic (1), Jorma Paavonen (1)
(1) Helsinki Univ. Central Hospital, Dep of Ob/Gyn, Helsinki, Finland

Introduction: Preterm birth is often caused by infection or inflammation. Diagnosis of early intra-amniotic infection (IAI) is a challenge. High concentration of lactate dehydrogenase (LD) and low concentration of glucose in amniotic fluid are used to diagnose IAI by amniocentesis. We evaluated vaginal sampling of amniotic fluid to diagnose proven IAI with chorioamnionitis.
Material and Methods: Vaginal sample of amniotic fluid was obtained from 38 patients with PPROM between 22-37 weeks of gestation. Glucose and LD concentrations were measured. Histopathologic specimens of placenta were routinely examined. Glucose concentration of <0,5mmol/l and LD concentration of 1000U/l were used as cut-offs. Delivery took place within 72 hours.
Results: 26 patients had histological diagnosis of chorionamnionitis. LD was increased in 15 (58%), and glucose was decreased in 16 (62%). Both values were abnormal in 12 cases (46%). LD concentration was significantly higher in those with chorionamnionitis than in those without (median 2908 vs 906), p=0,023. Glucose concentrations did not differ (mean 0,6 vs. 0,52), p=0,676. Maternal CRP was 30 (range 0-96) among those with chorionamnionitis vs. 12 (range 0-35) among those without, p= 0,256. Only three patients with proven chorionamnionitis (11.5%) had uterine tenderness on examination p=0,538. **Comments:** LD concentration in vaginal amniotic fluid sample can be used for the detection of IAI and chorionamnionitis in patients with PPROM.

448.00 PB186 Amniotic Fluid Erythropoietin in Pregnancies Complicated by Intrauterine Growth Restriction

Minna Tikkanen (1), Laura Seikku (1), Leena Rahkonen (1), Vedran Stefanovic (1), Jorma Paavonen (1)
(1) Helsinki Univ. Central Hospital, Dept. Ob/Gyn, Helsinki, Finland

Introduction: Intrauterine growth restriction (IUGR) is associated with stillbirth, prematurity, intrauterine hypoxia, meconium aspiration, and long-term adverse outcome such as cognitive dysfunction and cerebral palsy. Timing on delivery is challenging. Many methods are used in surveillance of IUGR fetus, including fetal heart rate recordings, biophysical profile and doppler velocimetry. One of the biomarkers of chronic fetal hypoxemia is amniotic fluid erythropoietin (aEPO). Hypoxia stimulates EPO synthesis.
Objective of the study: To evaluate aEPO in the management of pregnancies with IUGR, and in the prediction of neonatal outcome.
Patients and methods: Amniocentesis was performed in 66 pregnancies with IUGR (≤ -2 SD) at 24 to 34 weeks of gestation. aEPO was measured by immunochemiluminometric assay. Normal aEPO was defined < 3 IU/l, intermediate 3-27 IU/l, and abnormal ≥ 27 IU/l.
Results: Altogether, aEPO was normal in 3 (4.5%) cases, intermediate in 53 (80.3%) and abnormal in 10 cases (15.2%). Abnormal biophysical profile was associated with abnormal aEPO ($p<0.001$). The aEPO concentrations did not differ by absent or reversed end-diastolic flow or by oligohydramnion ($p=0.704$, $p=0.091$ and $p=0.08$, respectively). Umbilical artery pH and base excess were lower in pregnancies with abnormal aEPO ($p=0.027$ and $p=0.007$, respectively). The rate of composite adverse neonatal outcome (intraventricular hemorrhage, periventricular leukomalacia, cerebral infarction and/ or necrotizing enterocolitis) was associated with abnormal aEPO ($p<0.001$).
Conclusion: aEPO is a useful additional method in timing of delivery in preterm IUGR pregnancies.

227.00 PB187 Obstetric fistula; still an issue in our societies? Results from a national referral center in Norway

Jone Trovik (1), Heidi Thornhill (1), Torvid Kiserud (1,2)
(1) National Centre for Gynaecological Fistulas, Haukeland University Hospital,Berg
(2) Institute of Clinical Science, University of Bergen, Bergen-Norway.

Background: Genital fistula leading to uncontrolled leakage of urine or faeces is a feared complication of childbirth in developing countries. Is this still a problem in a Scandinavian country with modern hospital-based delivery service?
Methods: Since 1995 Haukeland University Hospital, Bergen, has received referrals of genital fistulas, from 2011 formally as a national referral centre. Patient information regarding causes, treatment and follow-up has been prospectively collected.
Results: 258 women were diagnosed with genital fistula during 1995-2013, 46 (18%) related to obstetrics; 5 urogenital and 41 enteral. 19 patients (41%) were from the hospital's primary catchment area. During this period the hospital had 91,817 deliveries; an incidence of obstetric fistula of 20.7/100,000 deliveries.
The urinary tract fistulas were mostly surgical related; 1 emergency cerclage and 3 caesarean sections. The enteral fistulas were all related to vaginal deliveries; 8/41 instrumental (20%), 22 (54%) suffered a perineal tear ≥ grade 3, for 10 patients (24%) no perineal injury was initially reported.
Symptoms started median 3.5 weeks after delivery but time from symptoms to diagnosis was median 46 weeks (range 0-196).
2 vesico-vaginal fistulas were treated by vaginal fistuloplastic while the vesico-abdominal, vesico-uterine and uretero-vaginal fistulas were repaired transabdominally. 3 enteral fistulas healed spontaneously, 2 by diverting enterostomy, 32 after transvaginal repair (12 with enterostomy), 4 awaits follow-up. Thus 42/46 (91%) obstetric fistulas are verified healed.
Conclusion: Obstetric fistulas still occur in developed societies but at a low incidence of 21/100,000 deliveries. Not prolonged obstructed labour but obstetric trauma and surgery were prominent causes.

329.00 PB188 Norwegian PUQE (Pregnancy Unique Questionnaire of Emesis) identifies patients with hyperemesis gravidarum and poor nutritional intake.

Elisabeth Birkeland (1), Guro Stokke (2), Randi J Tangvik (3), Erik A Torkildsen (4), Torill B Aarseth (5), Anne L Wollen (6), Susanne Albrechtsen (1,2), Hans Flaatten (7,8), Jone Trovik (2)
(1) Dpt. Clinical Science, University of Bergen, Bergen, Norway
(2) Dpt. Obstetrics and Gynaecology, Haukeland University Hospital, Bergen, Norway
(3) Dpt. Research and Development, Haukeland University Hospital, Bergen, Norway
(4) Dpt. Obstetrics and Gynaecology, Stavanger University Hospital, Stavanger, Norway
(5) Dpt. Obstetrics and Gynaecology, Helse-Førde, Førde, Norway
(6) Dpt. Bergen, Volvat Medical Centre, Norway
(7) Dpt. Anaesthesia & Intensive Care, Haukeland University Hospital, Bergen, Norway
(8) Dpt. Clinical Medicine, University of Bergen, Bergen, Norway

Background: Hyperemesis gravidarum (HG) leads to significant reduced quality of life (QOL), and is potentially harmful for mother and foetus. The English questionnaire PUQE identifies women severely affected with hyperemesis.
Aim: To investigate whether scores from the translated version; SUKK (SvangerskapsUtløst Kvalme Kvantifisering) was associated with severity of hyperemesis and nutritional intake.
Methods: A prospective case-control study was conducted in Western-Norway: Bergen, Stavanger and Førde, during May 2013-January 2014. A total of 69 pregnant woman participated; 37 hospitalised patients with hyperemesis gravidarum and 32 healthy controls. SUKK-score, QOL-score and nutritional intake (24-hours registration) were evaluated.
Results: HG patients had shorter gestational length than controls (median 9 versus 11.5 weeks, P=0.003), and larger weight-change from pre-pregnant (-3 kg vs. +2kg, p<0.001) otherwise the groups were similar regarding pre-pregnant BMI, age, parity, and weight at inclusion. Compared to the controls, HG patients had significant higher SUKK-score (median 13, 95% CI [11-14] vs 6.5, 95% CI [4-8]), lower QOL (median score 3 vs. 6) and lower energy intake (median 957 kcal vs 1651 kcal, all p<0.001). SUKK-score was inversely correlated to nutritional intake (-0.5, p<0.001). At discharge SUKK-score had fallen to median 6 (95%CI [5-8]) and QOL score risen to 6.5, (both p<0.001) compared to values at admission.
Conclusion: SUKK-scoring is a robust indicator of severe hyperemesis gravidarum and insufficient nutritional intake. SUKK-score improved after treatment of HG. Thus, PUQE has been validated to assess HG severity and effect of treatment in a Norwegian population.

451.00 PB189 Systolic blood pressure and fatty acid-binding protein 4 predict pregnancy-induced hypertension in overweight nulliparous women

Anna Tuuri (1), Matti Jauhiainen (2), Matti J. Tikkanen (3), Risto Kaaja (4)
(1) Department of Obstetrics and Gynecology Hospital District of Helsinki and Uusimaa, Finland
(2) National Institute for Health and Welfare, PL 30, 00271 Helsinki, Finland
(3) Heart and Lung Center, Helsinki University Central Hospital and Folkhälsan Reseach Center, Finland
(4) Turku University/Satakunta Central Hospital, Finland. Turku University/Satakunta, Finland

Introduction: The insulin-sensitivity regulator adipocyte fatty acid-binding protein 4 (FABP4) integrates metabolic and inflammatory responses. We hypothesize that there is relationship between FABP4 and factors related to metabolic syndrome in pregnancy-induced hypertension (PIH).
Methods: In this prospective observational study, among the 72 relatively overweight (BMI ≥ 24 kg/m2) nulliparous women, 14 developed non-proteinuric PIH and 12 developed proteinuric PIH (preeclampsia), whereas 46 had normotensive pregnancies. Insulin sensitivity was assessed via the whole-body insulin sensitivity index (ISI) and the homeostatic model of assessment – insulin resistance (HOMA-IR) at 24 weeks of gestation. Maternal serum levels of FABP4, high-sensitive C-reactive protein (hs-CRP), total testosterone, and non-protein-bound calculated free testosterone (cfT) were determined at 24 and 32 weeks.
Results: Measures of ISI, HOMA-IR, hs-CRP, testosterone and lipids did not differ at 24 and/or at 32 weeks in women who were subsequently hypertensive. SBP was higher at all time points and FABP4 levels tended to be higher at 24 and 32 weeks in patients compared to controls. In logistic regression analysis, baseline FABP4 (P = 0.04, r2 = 0.06) and SBP after 10 min standing (P = 0.015, r2 = 0.09) were associated with the development of PIH. FABP4 levels at 24 weeks did not correlate with insulin sensitivity. Neither was correlation seen between FABP4 levels at 24 and 32 weeks, vs. those of hs-CRP and testosterone.
Discussion and conclusions: Serum FABP4 concentration and SBP after 10 min standing in orthostatic test at 24 weeks are associated with the development of PIH.

179.00 PB190 Teenage pregnancies: Obstetric and neonatal outcomes at a Danish Regional Hospital

Aiste Ugianskiene (1, 2), Susanne Ledertoug (1), Pia Murrekilde (1), Pinar Bor (1)
(1) Department of Obstetric and Gynecology, Regional Hospital of Randers, Denmark
(2) Department of Obstetric and Gynecology, Aalborg Universitetshospital, Denmark

Background
Teenage pregnancy varies from 1,6% to 18% of all births worldwide. Teenage pregnancy is shown to be associated with increased risks of adverse obstetric and neonatal outcomes, such us preterm labour, low birth weight, fetal growth retardation, stillbirth and obstetrics complications.
The aim of our study was to investigate whether teenage pregnancies were associated with increased risks of adverse maternal, obstetrical and neonatal outcomes.
Methods and materials
A retrospective case control study. All nulliparous singleton pregnant teenagers ≤ 19 years (n=133) and randomly selected control groups aged 20-29 (n=133) and 30-39 years (n=133) who gave birth at the Regional Hospital of Randers from 2008 to 2012 were included.
Results
The incidence of teenage pregnancy in our study was 1,8%. Smoking during pregnancy was significantly higher among pregnant teenagers (47%) versus non-teenagers (9%).
There was a significantly higher incidence of spontaneous vaginal delivery in teenage pregnancies (81%) compared to controls (66%). Third and fourth degree perineal tears (0,75%) and postpartum haemorrhage (14%) were significantly less in teenage pregnancies than in control groups (6,3% and 24% respectively). There was no significant difference in the incidence of hypertensive disorders, preterm labour, prolonged pregnancy or neonatal outcomes including fetal birth weight, Apgar score and arterial cord pH.
Conclusion
Teenage pregnancies in our setting seem not to be associated with increased risks of adverse maternal, obstetrical and neonatal outcomes. This is probably due to high-quality maternity and neonatal care that is available for teenage pregnancies at the Danish hospitals.

196.00 PB191 Maternal experience of breech delivery

Jukka Uotila (1), Elli Toivonen (2), Outi Palomäki (1), Heini Huhtala (2)
(1) Tampere University Hospital
(2) Tampere University, Medical school

Background: The optimal mode of breech birth remains controversial. In Finland, a trial of vaginal delivery is possible if strict selection criteria are met. As clinical practice in managing vaginal breech birth differs from that in normal delivery, the birth experience may also be different. This cohort study compares the childbirth experience between term breech and vertex deliveries.
Methods: Intended vaginal term breech births from 2008 to October 2012 were included, and for every breech birth, a vertex control was selected. The proportions of deliveries ending in a CS and of mothers who had given birth vaginally before were equal in both groups. 308 mothers were sent and 170 returned the Childbirth Experience Questionnaire.
Results: The birth experience does not differ between breech and vertex births, except for aspects regarding the choice of birthing position. Indications of an even more positive experience were observed in the breech group, with the exception of the choice of analgesia, but these were not statistically significant. Primiparity, emergency CS, infant birth trauma and prolonged hospital stay were identified as risk factors for a negative birth experience.
Conclusion: The birth experience of vaginal breech birth seems to be at least as positive as vaginal vertex birth experience.

363.00 PB192 Induced and spontaneous breech delivery in Helsinki, Finland in 2013

Satu Uotinen (1), Georg Macharey (1), Veli-Matti Ulander (1), Mervi Vaisanen-Tommiska (1)
(1) Helsinki University Central Hospital, Finland

Objective: To evaluate how women with breech presentation deliver and to compare the mode of delivery and neonatal and maternal outcome between induced and spontaneous breech delivery at term with singleton live fetuses. **Design**: Retrospective cohort study. **Setting**: Helsinki University Central Hospital, Finland, with 12000 annual deliveries. **Population**: 293 women. Preconditions for vaginal breech delivery: fetus < 4000 grams evaluated with ultrasonography, non-extended breech presentation, mothers wide pelvis (examined by pelvic X-ray, magnetic resonance imaging or clinically) and mothers motivation. **Methods**: Obstetrical records, including summary of newborn. **Main outcome results:** Planned and actual mode of delivery, neonatal and maternal outcome. **Results**: 61% of all women were nulliparous. Of 113 spontaneous breech 65 were planned to deliver vaginally and in 49 cases women gave birth to their child vaginally. 48 breech presentations were surprises until vaginal labor. Of 45 induced breech deliveries 28 women gave birth to their child vaginally. Induction was performed with intravaginal misoprostol, intravenous oxytocin, artificial rupture of the membranes or cervical dilation with a ballooon catheter. The success of induced vaginal breech delivery did not differ from the success of spontaneous vaginal breech delivery. **Conclusion**: In selected cases of breech presentation and with low criteria for change in vaginal delivery to section, induction of labor is safe option if undertaken in units having a tradition of vaginal breech deliveries.

55.00 PB193 Mid-pregnancy Doppler ultrasound of the uterine artery in metformin vs. placebo treated PCOS women: a randomized trial

Solhild Stridsklev (1), Sven Magnus Carlsen (2), Øyvind Salvesen (3), Ilka Clemens (4), Eszter Vanky (5)
(1) Dept.Obst Gyn, St.Olavs Hospital, Trondheim, Inst LBK, NTNU
(2) Dept Endocrinology, St.Olavs Hospital, Trondheim, Unit of ACR, NTNU
(3) Unit of ACR, NTNU
(4) Dept.Obst Gyn, St.Olavs Hospital, Trondheim
(5) Dept.Obst Gyn, St.Olavs Hospital, Trondheim, Inst LBK, NTNU

Metformin is used to reduce pregnancy complications in women with polycystic ovary syndrome (PCOS), although it is not approved for this indication and solid evidence for its use is lacking. Mid-pregnancy Doppler ultrasound is one of the best methods for prediction of adverse pregnancy outcome.
Objective: To investigate 1) if metformin treatment influenced mid-pregnancy pulsatility index (PI) of the uterine artery and 2) whether metabolic or endocrine factors affect PI of the uterine artery of PCOS women 3) if PI predicted adverse pregnancy outcome in PCOS woman.
Design
This is a sub-study of a randomized, placebo-controlled, double blind, multi-center study conducted at 11 secondary-care centers. We randomly assigned 273 singleton pregnancies to receive metformin or placebo, from first trimester of pregnancy to delivery. In the present sub-study, 231 pregnancies are included, i.e. those who completed the ultrasound examinations. Main outcome measures were; mid-pregnancy PI in the uterine artery related to metformin use, androgen levels, OGTT and insulin levels.
Results
We found no difference in PI between the metformin and placebo groups. In multivariate analyses fasting serum glucose of 1st and 2nd trimester correlated positively to mid-pregnancy PI. Only in univariate analyses a weak correlation between androstenedione and PI was seen.
Conclusions
Metformin treatment did not affect uterine artery blood flow. High fasting blood glucose correlated inversely to uterine artery blood flow. Mid-pregnancy PI correlated positively to preeclampsia (PE), hypertension and gestational diabetes mellitus (GDM) in PCOS pregnancies. Androgen levels correlated only to PI in univariate analyses.

111.00 PB194 Protecting the perineum - reduced number of obstetric anal sphincter injuries (OASIS) in a Danish setting

Hanne Brix Westergaard (1), Mette Monsrud (1), Gitte Ulriksen (1), Dorte Dahl (1), Karen West (1), Nini Møller (1)
(1) Hillerød University Hospital, Dep. Obstetetrics & Gynaecology, Hillerød, Denmark

Introduction: Studies from Finland and Norway have shown that using different intervention programs to protect the perineum can reduce the number of perineal lesions including Grade III and IV OASIS.
Objectives: To reduce the number of OASIS following clinical interventions in the department of obstetrics and gynaecology, Hillerød Hospital, Denmark.
Design: In May 2012 an intervention program to reduce the number of OASIS was introduced including among others protection of the perineum by either the "Ritgens", "Classic" or "Flat hand on perineum" maneuver. From November 2013 following both a 1-day course in the use of "The Finnish hand grip" and supervision on phantoms and patients by "perineal-ambassadors" only this hand grip was used by all midwives.
Data were extracted retrospectively from the local birth registry on all vaginal births by Opus Obstetric Ud-data, calculating changes in the median over time by statistical process control.
Results: From January 2011 till November 2013 the median rate of Grade 3 and 4 OASIS was reduced from 4.57% to 2.59%; 0.56% to 0% respectively. After introducing the "Finnish hand grip" the median seems to fall even further. Analysis of data from 2014 will be available at the congress.
Conclusion: Introduction of clinical interventions to protect the perineum reduced the number of OASIS in a local Danish setting; however after introducing "The Finnish hand grip" we hope to see further reductions, similar to the figures shown in Norway.

440.00 PB195 Amniotic Fluid Lactate (AFL) at diagnosis of labor predicts Dystocia and Caesarean Section (CS)

Eva Wiberg-Itzel (1), Margareta Norman (1), Anna-Carin Wihlbäck (2), Elie Azria (3), Irene Hoesli (4)
(1) Karolinska Institute, Stockholm, Sweden
(2) Umeå University, Umeå, Sweden
(3) Bichat, Univeristy of Paris, France
(4) University of Basel, Switzerland,

Objective: To assess whether AFL-test at diagnosis of labor is an independent and early predictor of labor dystocia and cs among healthy primiparas.
Study Design: A prospective cohort study of 1547 Swedish, Swiss and French primiparas. All women had a normal a healthy pregnancy with a spontaneous onset of labor. First sample of AFL was collected and analyzed blinded at the first vaginal examination after the woman attended the delivery ward, or at first examination after membranes was broken. Dystocia was then defined when the labor progress crossed action line (AL) in the partogram, or with no labor progress for 2h. A standard oxytocin regimen was used.
Results: The first sample of AFL was normally distributed and did not correlate with age, BMI or gestation. AFL >10.1 mmol/l was associated with a more frequent use of oxytocin (p=0.03) with labor dystocia (p=0.04) and more CS (p<0.001). A regression analysis demonstrated that AFL>10.1 mmol/l in the first sample was an independent predictor of dystocia (OR=2.0 95% CI 1.02-2.10), and an independent predictor of CS (OR=2.7 95% CI 1.4-3.3). The first sample of AFL>10.1mmol/l has a specificity of 91.5% (89-94%) in predicting dystocia and a specificity of 90% (88-92%)in predicting CS with a 91% (90-93%)negative predictive value.
Conclusion: AFL measurement at diagnosis of labor is an independent early predictor of dystocia and CS. These data suggest that women with AFL >10.1 mmol/l early in the labor progress are at a risk of a complicated delivery.

287.00 PB196 The Danish screening procedure for gestational diabetes mellitus (GDM) in the first pregnancy

Hanne Benedicte Wielandt (1,2), Miriam Jin Næstrup Markman (1), Mia Kristina Lundgaard Hansen (1)
(1) University Of Southern Denmark; Institute Of Regional Health
(2) Department of Gynaecology and Obstetrics; Lillebaelt Hospital - Kolding

INTRODUCTION
The purpose of the study is to evaluate the Danish screening procedure for gestational diabetes mellitus (GDM).

MATERIAL AND METHODS
In accordance with the Public National Antenatal Care Programme, pregnant women with: prior GDM, pre-pregnancy BMI ≥ 27 kg/m², family history of diabetes, previous offspring birth weight above 4500g, glucosuria, polyhydramnios were invited to have a 75g-Oral Glucose Tolerance Test (OGTT). The pregnant women are diagnosed GDM if the blood glucose level is ≥ 9.0 mmol/L after two hours. Subsequently, she is invited for OGTT 2-3 month post partum.

During the 5-year period 01-01-2009 til 31-12-2013 in total 15 735 women gave birth at Lillebaelt Hospital – Kolding, comprising a cohort of 535 (3.4%) GDM-patients. Among them, a study-population was defined considering 209 of nulliparous women, treated with diet and lifestyle intervention only.

RESULTS
In total 127 (60.7%) GDM-patients had BMI ≥ 27 kg/m². There were 123 (58.8%) accepting the follow-up OGTT post partum, while 81 women (38.8%) failed to appear.

In the observation period 68 women had a subsequent pregnancy and 30 (44 %) of them were diagnosed with GDM. All of them attended the screening procedure concerning their second pregnancy.

CONCLUSIONS
The main indication for screening for GDM in first pregnancy is preconceptional BMI above 27 kg/m^2. All of them attended the screening procedure, thus reflecting the efficiency of the screening programme regarding pregnant with a history of GDM. However, the turnout for post partum follow-up OGTT is poor.

228.00 PB197 Fetal heart rate short term variation – internal vs. external intrapartum monitoring.

Stina Wretler (1), Sophie Graner (1,2), Malin Holzmann (1), Lennart Nordström (1)
(1) Department of Women's and Children's Health, Karolinska Institutet
(2) Clinical Epidemiological Unit, Department of Medicine, Karolinska Institutet

Introduction: Antenatal computer analysis of fetal heart rate beat-to-beat variation, short term variation (*STV*), has been evaluated as an adjunct to cardiotocography (*CTG*) with the Sonicaid System 8002. It is presently in use in antenatal surveillance. STV has not yet been evaluated for intrapartum use or when monitored with scalp electrode. The aim of this study was to compare intrapartum internal and external monitoring of STV.
Material and methods: We monitored women at Karolinska University Hospital and used a new CTG monitor *(EDAN*™). Inclusion criteria were singleton pregnancies at term (>37 weeks), ruptured membranes and in active labor (cervix dilated >3cm). Fetuses were simultaneously monitored with external and internal devices, using the twin function of the machine.
Results: 20 fetuses were monitored with at least 10 recordings of STV (totally 463 recordings). Median delta STV (*internal-external*) was 0,0 msec (-2,9 - 5.5).
Conclusion: In the lower range of STV (< 8 msec) the internal device showed lower results than the external device, while higher STV values were found with scalp electrode in the higher range. Internal STV monitoring also had a wider distribution than external monitoring. Internal monitoring is based on fetal ECG and we believe that these values are less influenced by artifacts than values obtained by ultrasound detected heart movements. Our results suggest that different cut off values are needed for external and internal monitoring of STV. Further studies are in progress to investigate the clinical value of intrapartum STV monitoring.

229.00 PB198 Intrapartum monitoring of fetal heart rate short term variation – a methodological study.

Stina Wretler (1), Malin Holzmann (1), Sophie Graner (1,2), Lennart Nordström (1)
(1) Department of Women's and Children's Health, Karolinska Institutet.
(2) Clinical epidemiology unit, Department of medicine, Karolinska Institutet.

Introduction: Antenatal computer analysis of fetal heart rate beat-to-beat variation, short term variation (*STV*), has been evaluated as an adjunct to ordinary CTG with the Sonicaid System 8002, using an external ultrasound device. Low STV (< 3 ms) is antenatally closely associated with fetal acidemia. The method has so far not been applied during labor. The aims of this study were to investigate the distribution of STV during labor and to evaluate variation with repetitive analyses. Material and methods: We monitored patients in active labor at Karolinska University Hospital with the CTG monitor (*EDAN*™). Inclusion criteria were singleton term (>37 weeks) pregnancies with ruptured membranes. All women were monitored with CTG according to clinical standard and with scalp-electrode. For 95 women we monitored a single value of STV and for 50 of these we also had at least 5 repeated values of STV with at least one minute between the recordings (totally 582 recordings). Results: The median STV for all cases (N=95) was 7,1 (range 1,3-25,9) ms. There was no difference in STV between early (3-6 cm) and late labor (7-10 cm) (p=0.60). The distribution of interquartile values (25-75th centile) with repetitive analyses were; median 7,8, (range 5,9-10,3) ms. Conclusion: Most fetuses had STV within a close range and with no difference in early or late labor. Closely derived values show a small variation. Hence it may be possible that STV can be an adjunct analysis to interpretation of intrapartum CTG in the future. The method needs further evaluation including larger data on normal values and its association to fetal academia.

355.00 PB199 Decline in stillbirth rate in post-date pregnancies after implementation of new national guidelines in Denmark

Anne Rahbek Zizzo (1), Ida Kirkegaard (1), Anja Pinborg (2), Cindie Mogensen (1), Niels Uldbjerg (1)
(1) Department of Obstetrics and Gynecology, Aarhus University Hospital, Denmark
(2) Department of Obstetrics and Gynecology, Copenhagen University Hospital, Denmark

Objectives: To investigate, if the perinatal mortality and morbidity declined after implementation of new national guidelines for post-date pregnancies in Denmark.
Introduction: In 2011 the Danish guidelines for post-date pregnancies were changed from 1) induction of labor at gestational age (GA) of 42+0weeks; and 2) no surveillance between GA 40+0 and 42+0 to 1) induction of labor at 41+3 - 41+5 weeks; 2) surveillance at GA 41+0; and 3) induction at 41+0 weeks in case of maternal age > 40 years or BMI > 35 kg/m2.
Methods: This national cohort study included all pregnancies that reached 41+0 weeks of gestation from January 2007 to December 2012 (N=90.182). Incidence rates of both primary and secondary outcomes were measured per year. Multivariate logistic regression analyses were used to estimate risks in 2010 versus 2012, adjusted for maternal age, obesity, and parity.
Results: We observed a decline in stillbirth rate (0.8 to 0.3 ‰, p=0.03) and also a decreasing perinatal mortality (1.2 to 0.6 ‰, p=0.09).
Secondary outcomes: The rate of vacuum extraction (p=0.01), Caesarean section (p=0.04) and Apgar score below 7 at 5 minutes (p=0.02) decreased significantly. The rate of admissions to the neonatal department did not change, while the rate of induction of labor increased significantly (23.1 to 34.6%, p<0.001).
Conclusions: This study showed a decline in stillbirth rate after implementation of new Danish guidelines for post-date pregnancies. The rate of Cesarean section and vacuum extraction remained stable during the same study period, despite an increased rate of inductions.

52.00 PB200 Color-coded tissue velocity imaging and the cardiac state diagram as a new approach to assess fetal myocardial dysfunction.

Nina Elmstedt (1), Jonas Johnson (2), Britta Lind (2), Kjerstin Ferm-Widlund (1), Lotta Herling (1), Magnus Westgren (1), Lars-Åke Brodin (2)
(1) Obstetrics and Gynecology, CFM, Karolinska University Hospital Huddinge, Stockho
(2) Medical Engineering, STH, Royal Institute of Technology, Stockholm, Sweden

Objectives The objective of this study was to evaluate color-coded tissue velocity imaging (TVI) together with the cardiac state diagram (CSD) as a new approach to developing a non-invasive assessment method for fetal myocardial function. Such a method could give early indications of fetal pathology, as myocardial dysfunction is often the consequence when the circulation tries to adapt to deteriorating situations.
Methods TVI recordings from 125 healthy fetuses, at 18 to 42 weeks of gestation, were performed from an apical four-chamber view. The myocardial velocity data was extracted from the basal segment of septum as well as the left and right ventricular free wall.
Results During a cardiac cycle the longitudinal velocities of septum increased with gestational age, as did the velocities of the left and right ventricular free wall, except for the peak velocity of post-ejection. The duration of rapid filling and atrial contraction increased during pregnancy while the duration of post-ejection decreased. The duration of pre-ejection and ventricular ejection did not change significantly with gestational age.
Conclusion Evaluating fetal systolic and diastolic performance using TVI together with CSD contributes to increase the knowledge and understanding of fetal myocardial function. This would be beneficial when evaluating fetal well-being in a wide range of pregnancy associated conditions, facilitating risk assessment and monitoring the benefit of therapeutic interventions. However, further testing of the clinical potential is needed in larger study populations concerning the pathological questions at issue, and additional development required to render the method simple enough for the clinical practice.

201.00 PB201 Risk factors for postpartum depression in first-time mothers without previous psychiatric contact in Sweden

Sara Sylvén (1), Maria Jonsson (1), Alkistis Skalkidou (1)
(1) Department of Women's and Children's health, Uppsala University, Uppsala, Sweden

Objective: Postpartum depression (PPD) is one of the leading causes of postpartum morbidity worldwide, affecting approximately 10% of women. Previous psychiatric history and family dynamics are considered major risk factors. The aim of the study was to investigate risk factors for PPD in first-time mothers with no previous history of depression.
Methods: During one year, May 2006 to June 2007, women who gave birth in Uppsala University Hospital were asked to participate in the UPPSAT study. The participating women (n=2318) answered three questionnaires, at five days, six weeks and six months postpartum, containing the Edinburgh Postnatal Depression Scale (EPDS) and questions assessing possible risk factors for PPD. The woman's EPDS-based self-reported depression status (cut-off 12 points) was the main outcome measure.
Results: The prevalence of self-reported PPD in this sub-study was 10.3% five days postpartum, 6.4% after six weeks, and 4.0% six months after the delivery. Variables significantly associated with depression six weeks postpartum included anxiety proneness (OR 15.2), history of mood swings while on contraceptives (OR 2.3), alcohol consumption during the pregnancy (OR 3.1), breastfeeding problems (OR 2.5), insufficient sleep (OR 5.2), problems with the baby (OR 2.2) and insufficient partner support six weeks postpartum (OR 5.0).
Conclusion: First-time mothers without a history of depression present with distinctive risk factors for PPD. Implementation of this knowledge into screening efforts could help identify and support women who are at risk of developing their first depressive episode postpartum, thus preventing long-term consequences of maternal perinatal morbidity.

39.00 PB202 Non-invasive prenatal Testing of Trisomy 21 and 18 by DNA massively parallel sequencing (MPS) for maternal plasma DNA in twin pregnancies

Fang Chen (1)
(1) BGI

Objectives
With the increasing trend of twin pregnancies in the last decades, the need to seek an accurate approach for noninvasive prenatal testing becomes urgent. Our study aimed to evaluate the performance of noninvasive prenatal testing of Trisomies 21 and 18 in twin pregnancies by maternal plasma sequencing.
Methods
Pregnant women with live twin fetuses were recruited, with careful pre-test counseling, from six hospitals during April to December 2012 for this study. Written informed consent was obtained from each participant. All MPS-based tests were performed prior to the recording of karyotyping information and the sequencing lab was blinded.
All samples performed karyotyping according such indications as follows: i) positive results in maternal serum screening tests, ii) increased nuchal translucency (NT), iii) absence of fetal nasal bone, iv) abnormal ultrasound findings in second trimester, Ⅴ) twin pregnant women by IVF.
5ml peripheral venous blood sample was obtained 30 minutes before invasive procedures. Maternal plasma was isolated within eight hours by a double-centrifugation protocol and stored at -80°C. DNA was extracted from 600ul maternal plasma and sequenced on Illumina HiSeq 2000 platform. For each sample, the report was delivered within 12 days after blood sampling.
Results
Totally 128 samples were collected and were treated as real clinical samples, then processed to sequencing immediately after sample collection without delay. The maternal age ranged from 21 to 40 years old and the gestational age from 11^{th} to 27^{th} weeks. With the same pipeline for the singleton pregnancy, we correctly identified two cases with discordant fetal Trisomy 21 and one case with discordant fetal Trisomy 18. The rest 125 samples were classified as negative. Compared with the results of full karyotyping, the estimated sensitivity and specificity for trisomies 21 and 18 were 100%.
Conclusions
Our study suggested that NIPT for Trisomies 21 and 18 by maternal plasma DNA sequencing is of high sensitivity and specificity in twin pregnancies. It has the potential to be used as an alternative option of prenatal test for twin pregnancies.

423.00 PB203 Twin-to twin transfusion syndrome in Sweden, an up-date

Sverker Ek (1), Marius Kubklickas (1), Peter Lindgren (1), Elle Wågström (1), Magnus Westgren (1), Elenor Tiblad (1)
(1) Center of Fetal Medicine, Karolinska Univ hopsital

Introduction
Approximately 1200 twin pregnancies are delivered in Sweden each year. Two thirds are non-identical with separate placentas but the majority of the identical has a common placenta, i.e. they are monochorionic. As such they may develop complications related to a shared blood circulation. It is estimated that 10% of theses may develop twin-to-twin transfusion syndrome (TTTS), giving 15-20 cases per year with this serious complication carrying an estimated 80% mortality.
The treatment of choice is fetoscopic guided laser occlusion (FLOC) which is carried out at Karolinska Univ. Hospital.
Method
This presentation covers all pregnancies treated with FLOC in our institution since 2001 with significant TTTS (≥ stage 2) up until 2013.
Results
138 FLOC were carried out, two of these were triplex pregnancies. The median maternal age was 31,8 years. Treatments were carried out between 17+0—26+0 completed weeks, mean 20+6.
Five pregnancies are not included in the results; one missing, two did TOP after treatment and the two triplex pregnancies (one ended with three live born babies; the other with one). In six cases the procedure had to be repeated.
Out of 133 cases 45 had one infant born alive and in 58 cases both. This gives that 103 of 133 (77,4%) eventually had at least one infant born alive.
Even though inclusion and exclusion criteria may differ between centers, our results are comparable with other international centers concerning short-time outcome

375.00 PB204 National quality assessment of the Danish first trimester screening programme for trisomy 21 2008-2012

Charlotte Ekelund (1, 2), Olav Bjørn Petersen (3), Torben Larsen (4), Niels Uldbjerg (3), Lene Sperling (5), Annette Wind Olesen (6), Helle Zingenberg (7), Lillian Skibsted (8), Peter Skovbo (9), Susanne Kjærgaard (2), Finn Stener Jørgensen (10), Ann Tabor (2)
(1) Nordsjællands Hospital Hillerød
(2) Rigshospitalet Copenhagen
(3) Århus Universitetshospital Brendstrupgaardsvej
(4) Holbæk Hospital
(5) Odense Universitetshospital
(6) Kolding Hospital
(7) Herlev Universitetshospital
(8) Roskilde Hospital
(9) Aalborg Universitetshospital
(10) Hvidovre Universitetshsopital

Objective:
To report national results of first trimester screening for trisomy 21 in Denmark in the period 2008-2012.
Methods:
All pregnant women in Denmark are offered a risk assessment for trisomy 21 in the first trimester based on maternal age, the nuchal translucency measurement and PAPP-A and free β-hCG. The ultrasound scans are performed in 18 obstetrics departments and a risk > 1:300 is used as the cut off for referral to invasive testing. From The Danish Fetal Medicine Database first trimester screening data from 2008-2012 were retrieved to assess the national screening performance.
Results:
A total of 265,501 first trimester risk assessments for trisomy 21 performed in singleton pregnancies were recorded in the database. Participation rate in first trimester screening was >90%. The national screen positive rate (SPR) has for the last 4 years been stable around 5% as seen in figure 1.The corresponding prenatal detection rates (DR) for the 5 year period have been reported between 82% and 95%. The detection rate for 2012 is overestimated as cytogenetic data from 2013 is not yet available in the database.
Conclusion:
A national fetal medicine database has been successfully established in Denmark.
Results from the database have shown that on a national level first trimester screening performance is stable and high with a low screen positive rate and a high detection rate.

132.00 PB205 Color-coded tissue velocity imaging as a new approach to assess myocardial dysfunction in the growth restricted fetus.

Color-coded tissue velocity imaging as a new approach to assess myocardial dysfunction in the growth restricted fetus.

Nina Elmstedt (1), Jonas Johnson (2), Kjerstin Ferm-Widlund (1), Lotta Herling (1), Magnus Westgren (1)
(1) Obstetrics and Gynecology, CFM, Karolinska University Hospital Huddinge, Stockho
(2) Medical Engineering, STH, Royal Institute of Technology, Stockholm, Sweden

Objectives Myocardial function can be evaluated using color-coded tissue velocity imaging (TVI) to analyze the longitudinal myocardial velocity profile, and by expressing the motion of the atrioventricular plane during a cardiac cycle. This technique should have the potential to detect early and subtle changes in fetal myocardial performance, hypothetically giving early indications of impaired fetal myocardial function. The objective of this study was to introduce this technique as a new approach to assess myocardial dysfunction in the intrauterine growth restricted (IUGR) fetus.
Methods TVI recordings from 15 IUGR fetuses, at 26 to 38 weeks of gestation, were compared with controls. The myocardial velocity data was extracted from the basal segment of septum for subsequent offline analysis using EchoPAC and GHLab.
Results The duration of the post ejection phase was significantly longer for the IUGR fetus relative to controls. Also, the longitudinal shortening was significantly shorter and the peak velocity during atrial contraction was significantly lower for the IUGR fetus in comparison with controls.
Conclusion Evaluating fetal systolic and diastolic performance using TVI could contribute to increase the knowledge and understanding of fetal myocardial dysfunction in the IUGR fetus and aid in the clinical evaluation of these fetuses. This would be beneficial in clinical decision making, to facilitate risk assessment and to monitor the benefit of therapeutic interventions. The post ejection phase and the atrioventricular plane displacement are the variables most likely to indicate fetuses with abnormal myocardial function.

148.00 PB206 Impact of a standardized training program on midwive's ability to assess fetal heart anatomy by ultrasound

Eric Hildebrand (1), Madeleine Abrandt Dahlgren (2), Catarina Sved (3,4), Tomas Gottvall (1), Marie Blomberg (1), Birgitta Janerot-Sjoberg (3,5,6,7)
(1) Div. of Obstetrics and Gynecology, Department of Clinical and Experimental Medicine
(2) Dept. of Medicine and Health Sciences, Faculty of Health Sciences, Linköping University
(3) Dept. of Clinical Physiology and Nuclear Medicine, University Hospital, Linköping
(4) Div. of Cardiovascular medicine, Dept. of Medicine & Health, Faculty of Health Science
(5) Dept. Biomedical Engineering, Linköping University
(6) Dept. of Clinical Physiology, Karolinska University Hospital, Stockholm
(7) Div. of Medical Imaging and Technology, Dept. of Clinical Science, Intervention

Background: Studies of prenatal detection of congenital heart disease (CDH) in the UK, Italy, and Norway indicate that it should be possible to improve the prenatal detection rate of CDH in Sweden. These studies have shown that training programs, visualization of the outflow tracts and color-Doppler all can help to speed up and improve the detection rate and accuracy. We aimed to introduce a more accurate standardized fetal cardiac ultrasound screening protocol in Sweden.
Methods: A novel pedagogical model for training midwives in standardized cardiac imaging was developed, a model using a think-aloud analysis during a pre- and post-course test and a subsequent group reflection. The self-estimated difficulties and knowledge gaps of four midwives were identified. A two-day course with mixed lectures, demonstrations and hands-on sessions was followed by a feedback session one month later consisting of an interview and check-up. The long-term effects were tested two years later.
Results: At the post-course test the self-assessed uncertainty was lower than at the pre-course test. The qualitative evaluation showed that the color Doppler images were difficult to interpret, but the training seems to have enhanced the familiarity with the new technique. The ability to perform the method remained at the new level at follow-up both three months and two years later.
Conclusions: Our results indicate that by implementing new imaging modalities and providing hands-on training, uncertainty can be reduced and time decreased, but they also show that continuous on-site training with clinical and technical back-up is important.

312.00 PB207 Reduction of bias in non-invasive prenatal diagnosis of chromosomal aberration

Kasper Karlsson (1), Ellika Sahlin (3), Magnus Westgren (2), Erik Iwarsson (3), Magnus Nordenskjöld (3), Sten Linnarsson (1)
(1) Department of Medical Biochemistry and Biophysics, Karolinska Institutet
(2) Department of Obstet Gynecol, Karolinska Institutet
(3) Department of Molecular Medicine and Surgery, Karolinska University Hospital

Karyotyping analysis of aneuploidy by non-invasive prenatal diagnostics using maternal cell free DNA (cfDNA) has proven to be difficult. There are probability tests on the market, but still no diagnostic test. The main problem is to distinguish fetal cfDNA from the large background of maternal cfDNA. The bias inherent in current library preparation methods, and especially library amplification, prohibits accurate testing. When a library is amplified some molecules will amplify better than others due to e.g. size and GC content, which creates a bias.

We have developed a method to reduce amplification bias in library preparation and tested this method on 27 plasma samples from pregnant women. Fifteen of the samples contained one or more aneuploidies and twelve were controls. The method correctly identified all trisomies and all normal samples but failed to identify a chromosome aberration in the sex chromosomes (XXY). The reason for why this sample failed is still under investigation.

Using our method we have shown that we can eliminate a large part of the GC bias from amplification and we get an even distribution of reads on all chromosomes including high GC content chromosome 22 and low GC content chromosome 13, not just from chromosomes with a normal GC distribution (e.g. chr 21). Reduction of bias in sequencing library preparation can lead to a lower error rate for non-invasive prenatal testing of fetal aneuploidies and therefore to a better clinical decision making.

100.00 PB208 Use of antidepressants and induced abortions: population based case-control study from three Nordic countries

Helle Kieler (1), Heli Malm (2), Miia Artama (3), Anders Engeland (4), Kari Furu (4), Mika Gissler (5), Mette Noergaard (6), Olof Stephansson (1), Unnur Valdimarsdottir (7), Helga Zoega (7)
(1) Centre for Pharmacoepidemiology, Karolinska Institutet, Sweden
(2) Teratology Service, Helsinki University, Finland
(3) Dept of Medical Genetics, Helsinki University, Finland
(4) Dept of Pharmacoepidemiology, Norwegian Instit of Public Health, Norway
(5) THL, National Institute for Health and Welfare, Finland
(6) Department of Clinical Epidemiology, Aarhus University, Denmark
(7) Centre of Public Health Sciences, University of Iceland, Iceland

Objective: To assess whether use of selective serotonin reuptake inhibitors (SSRIs) and other antidepressants is associated with risks of late induced abortion.
Design: Population based case-control study using data from the national health registers in Denmark, Finland and Norway, 1996-2007.
Population: A total of 14 902 women with induced abortion gestational week 12 through 23 were included as cases. Controls were 148 929 women with a later induced abortion than their index case or subsequent delivery. Controls were matched by country of residency, calendar year of pregnancy ending, age and parity.
Main outcome measures: Association between antidepressant use during pregnancy and induced abortions by indication (fetal anomalies or maternal ill health or socio-economic disadvantage). Adjustments were made for use of teratogenic drugs.
Results: At least one prescription of antidepressants was filled by 550 of the cases (3.7 percent) compared with 3 275 of the controls (2.2 percent). Use of any type of antidepressants was associated with induced abortions due to maternal ill health or socio-economic disadvantage. (odds ratio 2.2, 95% confidence interval 2.0 to 2.5). Induced abortion due to fetal anomalies was associated with use of mirtazapine (2.2, 1.1 to 4.5).
Conclusions: Use of any type of antidepressants was associated with late induced abortions due to maternal ill health or socio-economic disadvantage. Except for mirtazapine there were no associations with induced abortions due to fetal anomalies.

295.00 PB209 Hypericum perforatum use during pregnancy and birth outcomes

Line Kolding (1), Lars Henning Pedersen (1), Tine Brink Henriksen (2), Jørn Olsen (3), Luke Grzeskowiak (4)
(1) Department of Obstetrics and Gynecology, Clinical Medicine, Aarhus University
(2) Dept Paediatrics (Intensiv Care Neonatology) and Perinatal Research Unit AU
(3) Institute of public health, department of epidemiology and UCLA Aarhus university
(4) The Robinson Institute, School of Paediatrics & Reprod. Health The Uni. Adelaide

Background: While hypericum perforatum (HP), is the most commonly used herbal therapy for depression, evidence relating to its use in pregnancy and subsequent birth outcomes remains scarce.
Objectives: To review existing literature on HP use during pregnancy and, in the Danish National Birth Cohort (DNBC), investigate the association between HP use and gestational age, preterm birth, birth weight, malformations and Apgar scores.
Methods: Relevant articles, regardless of language, were retrieved from e.g. PubMed, SveMed+, Embase, AMED and BVB Verbundkatalog. In the cohort study, information on pregnancy exposures was obtained from the DNBC and linked to the Danish Birth Registry. The outcomes were analysed using a Bayesian approach.
Results: Our priors were based on two identified studies (N=68) in which there were no associations between HP and birth outcomes. In the DNBC, we compared the outcomes of 37 exposed pregnancies with the unexposed cohort (N= 86.031). Among the exposed, the GA at birth was 278,5 days compared with 279,7 days in the cohort. Preterm birth occurred in 1/37 (2,8 %) after HP use and in 3835/86031 (4,7 %) in the cohort. Malformations were identified in 3/37 (8,1 %) of the HP exposed compared with 2870/86031 (3,3 %). HP was not associated with low Apgar score or low birth weight. None of the associations were outside the credibility limits.
Conclusion: HP use was not associated with examined birth outcomes in analyses combining published data with results from the DNBC. This study adds to the existing knowledge, but more data are needed.

53.00 PB210 Poland's syndrome. First trimester prenatal diagnosis of a familial case.

Laura Faber (1), Flemming Skovby (2), Pernille Leicht (3), Lone Nikoline Nørgaard (1)
(1) Department of Obstetrics and Gynecology, Nordsjællands Hospital Hillerød,Denmark
(2) Department of Clinical Genetics, Rigshospitalet, Copenhagen, Denmark
(3) Department of Hand Surgery, Rigshospitalet, Copenhagen, Denmark

INTRODUCTION
We present a case of familial Poland's syndrome diagnosed in a first trimester fetus, with an affected father. Poland's syndrome is a rare (1/30.000 live births) congenital anomaly characterized by unilateral absence of the large pectoral muscle and ipsilateral symbrachydactyly.
CASE DESCRIPTION
A 28-year-old primigravida came at gestational age 12 weeks and 4 days for a nuchal translucency scan and first trimester risk assessment. Her husband had been diagnosed with Poland's syndrome. Transabdominal ultrasound showed a fetus with severe hypoplasia of the left forearm and absence of the left hand (Fig 1a).
A male child was born at term having absent pectoralis muscles on the left side, severe hypoplasia of the left forearm, and aplasia of the left hand (Fig 1b). X-ray showed a normal humerus, two short bones in the forearm, and no development of the hand or fingers (Fig 1c). We interpret these features as a case of Poland's syndrome.
Several pathogenic mechanisms for Poland's syndrome have been proposed. Familial transmission supports a genetic pathogenesis with sporadic cases arising from new mutations during development.
CONCLUSION
We believe that the malformations in the family are explained by an autosomal dominant trait with variable expressivity, implying a recurrence risk of 50%. Since familial cases of Poland's syndrome occur, we suggest that an early fetal malformation scan be offered at gestational age 14-16 weeks if a first degree relative of the fetus has Poland's syndrome. In severe cases the diagnosis may be made by ultrasound in the first trimester.

351.00 PB211 The rate of chromosomal abnormalities in cases of intrauterine fetal death in a population undergone first trimester combined screening.

Paul Bryde Axelsson (1), Iben Bache (2), Lone Nikoline Nørgaard (1)
(1) Department of Obstetrics and Gynecology, Nordsjællands Hospital Hillerød,Denmark
(2) Department of Clinical Genetics, Rigshospitalet Copenhagen University Hospital

Introduction: Previous reports of the rate of chromosomal abnormalities in Intrauterine Fetal Death (IUFD) have been in populations without a first trimester screening program. Justifying cytogenetic analysis in every case of IUFD requires its use to contribute to the possible explanation of IUFD. The aim of this study is to evaluate if its use is still warranted in countries with first trimester screening.
Materials and Methods: A cohort of Danish women undergoing combined first trimester screening during the period of 2008 to 2012 was retrieved from the Danish Fetal Medicine Database. Among pregnancies with low risk for trisomy 21 (< 1:300) and trisomy 13, 18 (< 1:150) (determined by maternal age, double test [β-hCG and pregnancy associated plasma protein A] and nuchal translucency scan) we identified cases of IUFD. Cytogenetic analyses were evaluated and common variants were not included.
Results: Among 247.488 pregnancies, over 90% underwent the first trimester screening program. Among those, 616 singleton pregnancies were registered as IUFDs with a low combined first trimester risk assessment and chromosome analysis was available in 243 cases. Of those with low first trimester risk and normal second trimester scan, 159 had undergone successful postpartum cytogenetic analysis: in 6 cases a chromosomal abnormality was found (3.8%) and 3 of these fetuses were without malformations on autopsy.
Conclusions: We recommend the continued use of cytogenetic analysis in the investigation for causes of IUFD, despite no apparent fetal malformations.

290.00 PB212 The Leiden-Karolinska Alliance: Fetal Therapy ready for the 21st Century

Dick Oepkes (1), Peter Lindgren (2), Jan van Lith (1), Magnus Westgren (2)
(1) Leiden University Medical Centre
(2) Karolinska Institute

In The Netherlands and in Sweden, invasive fetal therapy is concentrated in one national referral centre. Still, each centre treats a limited number of pregnancies. The most common treatable fetal diseases, twin-twin transfusion syndrome (TTTS) and fetal anemia are rare. To maintain a 24/7 service for the often acutely presenting patients for laser surgery for TTTS or intrauterine transfusion, a minimum of 3 experienced fetal surgeons is required per centre. The often-quoted minimum number of 20 rare, complex procedures per operator per year is barely reached.
To enhance the quality of our care, both centres formally collaborate in a Fetal Therapy Alliance since 2012. During visits, audits and teleconferencing meetings, both teams exchange experiences with complex cases, share knowledge on equipment and protocols and discuss ways to improve outcomes. Prospective multicenter research projects were initiated.
A main goal of the Alliance is to ensure sustainability, by offering intensive training to a few, selected young colleagues who will become the next generation fetal surgeons. Innovative high-fidelity simulator models incorporated in sophisticated didactic environments were developed to enable realistic practice before allowing mentored real-life operation on patients. An advanced high-speed internet tele-mentoring set-up was pioneered, enabling real-time video-assistance from one centre of operations performed in the other.
The Leiden-Karolinska Fetal Therapy Alliance in our view can act as a model for 21st Century care in rare diseases, where international collaboration in networks of excellence, optimally using the latest technology, will become a necessity to provide the best possible care.

434.00 PB213 Fetal calcifications are associated with chromosomal abnormalities

Ellika Sahlin (1), Meeli Sirotkina (2), Erik Iwarsson (1), Nikos Papadogiannakis (2)
(1) Department of Clinical Genetics, Karolinska Hospital and Karolinska Institutet
(2) Section for Perinatal Pathology, Karolinska Hospital and Karolinska Institutet

Introduction: The biological importance of calcifications occasionally noted in fetal tissues (mainly liver) in ultrasound and autopsy is largely unexplored. Scattered previous reports allude to an association to infection, circulatory compromise, malformations or chromosomal abnormalities. Material and Methods: One-hundred and fifty-one fetuses with histologically verified organ calcifications were retrospectively identified from the archives of the Section for Perinatal Pathology, Karolinska University Hospital. For each case, two controls with no calcifications, matched by gestational age and type of death (spontaneous or missed abortion, stillbirth, termination of pregnancy) were selected. Autopsy and placenta reports were scrutinized with focus on the presence of malformations or signs of infection. Chromosome analysis by conventional karyotyping or quantitative fluorescence-PCR, using a panel of short tandem repeats (STRs) specific for chromosome 13, 18, 21, X and Y was performed. Results: Calcifications were mostly located in the liver, but also in heart and bowel and other tissues. Fetuses with calcifications showed significantly higher rate of chromosomal abnormalities compared to the controls, i.e. 50% compared to 20% ($p<0.001$). The most common aberrations among the cases included trisomy 21 (33%), trisomy 18 (22%), monosomy X (18%) and trisomy 13 (12%). A similar distribution was seen among controls. The rate of malformations and infections were similar between cases and controls, suggesting that the association between calcifications and chromosomal abnormalities is not influenced by other factors. Conclusion: The presence of fetal tissue calcification is associated with high risk of aneuploidy, independent of malformations or infection. Calcifications should be sought for, wherever possible, in ultrasound examination.

46.00 PB214 Evaluation of two algorithms for prediction of preeclampsia

Ragnhild Bergene Skråstad (1,2), Gunhild Garmo Hov (3), Harm-Gerd Karl Blaas (1,2), Pål Richard Romundstad (4), Kjell Åsmund Salvesen (5)
(1)Department of Laboratory Medicine Children's and Women's Health, Faculty of Medicine, Norwegian University of Science and Technology, Trondheim, Norway
(2) National Center for Fetal Medicine, Department of Obstetrics and Gynecology, St. Olavs Hospital, Trondheim University Hospital
(3) Department of Medical Biochemistry, St. Olavs Hospital, Trondheim University Hospital
(4) Norwegian University of Science and Technology (NTNU), Department of Public Health and General Practice, Trondheim, Norway
(5) Department of Obstetrics and Gynecology, Clinical Sciences, Lund University, Lund, Sweden

Objectives This prospective study aimed to evaluate two algorithms for prediction of preeclampsia in a population of nulliparous women in Norway.
Methods The study was conducted at National center for fetal medicine in Trondheim, Norway. 541 nulliparous women were examined between 11+0 and 13+6 weeks with interviews for maternal characteristics and measurements of mean arterial pressure, uterine artery pulsatility index, pregnancy associated plasma protein A and placenta growth factor. The First Trimester Screening Program version 2.8 by The Fetal Medicine Foundation (FMF) was compared with the Preeclampsia Predictor TM version 1 revision 2 by Perkin Elmer (Predictor). Receiver operating characteristic curves and test characteristics were evaluated.
Results Twenty-one women (3.9%) developed preeclampsia. The two algorithms performed equally well for prediction of preeclampsia requiring delivery before 42 weeks with area under the curve of 0.77 (0.67-0.87) and sensitivity 40% (95% CI 19.1-63.9) at a fixed 10% false positive rate for FMF and 0.74 (0.63-0.84) and sensitivity 30% (95% CI 11.9-54.3) at a fixed 10% false positive rate for Predictor. The FMF algorithm performed well for preterm preeclampsia (delivery < 37 weeks) with area under the curve of 0.94 (0.86-1.0) and sensitivity of 80% (95% CI 28.4-99.5) at a 10% fixed false positive rate.
Conclusions FMF and Predictor algorithms had similar and only modest performance in predicting preeclampsia requiring delivery before 42 weeks. The FMF algorithm may be suitable for prediction of preterm preeclampsia.

116.00 PB215 What do antenatal healthcare professionals know about Down syndrome?

Ellen Ternby (1), Göran Annerén (2), Charlotta Ingvoldstad (0), Ove Axelsson (1,4)
(1) Department of Women's and Children's Health, Uppsala University, Uppsala, Sweden
(2) Department of Immunology, Genetics and Pathology, Uppsala University, Sweden
(3) Department of Public Health and Caring Sciences,Uppsala University,Uppsala,Swede
(4) Centre for Clinical Research Sörmland, Uppsala University, Uppsala, Sweden

Background: Information to expecting parents about prenatal diagnosis (PND) for chromosomal aberrations focuses on the risk of having a child with chromosomal aberrations, i.e. DS and risks associated with invasive tests. Routinely, no information is given about DS and its consequences. This study examined what health professionals giving information to expecting parents know about DS.
Method: A questionnaire was answered by 16 doctors and 64 midwives working in the antenatal healthcare in Uppsala.
Results: A majority of the professionals felt they had insufficient knowledge to inform about DS and only 2,5% had received education about DS. The professionals had variable and in some instances low knowledge about medical, cognitive and social consequences of DS.
64 % knew that the mean survival age for persons with DS is 60 years, while 30 % thought it was 35 years.
Half of the children with DS learn to speak, which 33 % of professionals answered. A majority thought everyone can speak.
Many children with DS have hearing problems (70%), which only 11% knew. The majority, 85% thought it was less common.
Over 90% of children with DS live with their biological parents, which 73% answered.
Conclusion: Health care professionals informing expecting parents about PND have variable and in some instances low knowledge about DS. These findings indicate a need for more education about DS for midwives and doctors working in the antenatal healthcare. This should facilitate expecting parents to receive sufficient information, which is a prerequisite for making an informed decision.

149.00 PB216 Neurodevelopmental problems and neuropsychiatric disorders in children 5 to15 years of age after intrauterine transfusions.

Magnus Westgren (1), Katarina Lindström (2), Galina Drozdova (1), Eleonor Tiblad (1), Sverker Ek (1), Marius Kublickas (1), Peter Lindgren (1)
(1) Center for Fetal Medicine CLINTEC Karolinska Institutet
(2) Department of Neuropaediatrics, Karolinska University Hospital Huddinge

To determine the incidence of neurodevelopmental problems and neuropsychiatric disorders in children to mothers with hemolytic disease of the fetus treated with intrauterine transfusion (IUT).
STUDY DESIGN:
Neurodevelopmental outcome in children at 5 to 15 years of age was studied by the FTF questionnaire. It is a tool for screening of neurodevelopmental problems consisting of 181 items which are divided in 8 subdomains; motor skills, executive functions, perception, memory, language, social and emotional. A score above the 90th percentile is an indication of a definitive problem.
RESULTS:
In total 48 parents/children were invited to participate in the study. Thirty (62,5%) decided to participate, and the material consists of 21 girls and nine boys. In mean they had received six IUTs, ranging from 2-10. A score above 90th percentile was recorded in motor skills (6,7%), executive functions (6,7%), perception (10%), memory (6,7%), language (6,7%), social (6,7%), and emotional (6,7%). In total 7 of thirty (23%) children exhibited a definitive problem.
CONCLUSION:
The present study indicates a slightly higher rate of neurodevelopmental impairments in children treated with IUT for fetal alloimmune anemia as compared to previous published studies. This might reflect the method used to evaluate neurodevelopmental outcome in the present study, but could also be related to composition of material and method used for fetal interventions. The present study indicates that a continuous routine follow-up should be a prerequisite in programs for fetal interventions.

319.00 PB217 Gender-related differences in placental blood flow at mid gestation

Christian Widnes (1,2), Kari Flo (1), Ganesh Acharya (1,2)
(1) University of Tromsø, Department of Clinical Medicine, Tromsø, Norway
(2) University Hospital of Northern Norway, Dept. of Obst. & Gyn, Tromsø, Norway

Objective: To investigate gender-related differences in placental blood flow in uncomplicated pregnancies.
Method: Prospective cross-sectional study of 520 healthy pregnant women at 22-24 weeks. Blood flow velocities of the middle cerebral artery (MCA), umbilical artery (UA), umbilical vein (UV) and the uterine arteries (UtA) were measured using Doppler ultrasonography. UV and UtA diameters were measured using two-dimensional ultrasonography and power Doppler angiography, respectively. Volume blood flows (Q) of the UtA and UV were calculated. Maternal hemodynamics was measured with impedance cardiography. UtA resistance (R_{uta}) was computed as MAP/Q_{uta}.
Results: Placenta volume blood flow (Q_{uv}) was similar, but the UA pulsatility index (PI) was significantly ($p = 0.008$) higher in female fetuses (1.19) compared with male fetuses (1.15). MCA PI (1.83 vs. 1.82) and cerebro-placental ratio (MCA PI/UA PI) were similar (1.56 vs. 1.60). UtA PI, Q_{uta}, R_{uta}, and % cardiac output distributed to the uterus were not significantly different between groups.
At delivery, the mean birth weight and placental weight of female infants (3504 g and 610 g) were significantly ($p=0.0005$ and $p=0.039$) lower than that of the male infants (3642 g and 634 g).
Conclusion: We have demonstrated gender related differences in UA PI at 22-24 weeks. UA PI is known to inversely correlate with the cross sectional area of arterioles in the placental vascular bed. Therefore difference in UA PI might be related to the difference in placental size suggesting that the pattern of placental growth in male and female fetuses is different already at mid gestation.

120.00 PB218 'It made you think about your opinion' -Women's perception of a web-based decision aid concerning screening for fetal anomalies

Annika Åhman (1), Anna Sarkadi (1), Peter Lindgren (1), Christine Rubertsson (1)
(1) Department of Women's and Children's Health, University of Uppsala, Sweden

Background: Despite efforts to provide information, research shows that women's choice of prenatal screening is often not based on informed decisions.
Objectives: To investigate the potential of a web-based decision aid (DA) to initiate a process of reflection and conscious decision-making in women concerning screening for fetal anomalies.
Methods: The DA consisted of four modules: 'Facts about fetal diagnostics', 'Likelihood of anomalies', 'Expectant parents' stories', and interactive 'Worksheets'. Seventeen women with access to the DA were interviewed, eleven who opted to use the DA and six who did not. Data were analysed by systematic text condensation.
Results: Women appreciated the DA for being easily accessible and emphasised the importance of a reliable source. The DA helped them to clarify their own standpoints and engaged their partner in the decision-making process. Reading the expectant parents' stories seemed especially instrumental in making women more aware of their own standpoint. Women described that the DA enhanced their awareness that participating in prenatal screening and diagnostics was a conscious choice. Women who chose not to use the web-based DA when offered believed they already had sufficient knowledge. **Conclusions:** The DA was able to initiate a process of conscious decision-making in pregnant women. **Practical Implications:** A web-based DA has low costs, is conveniently available to a population with Internet access and can be used on one's own terms. The DAs ability to improve awareness of the need to make a conscious choice showed that this might be a feasible tool for sharing information during pregnancy.

455.00 PB219 Ultrasonographic fetal soft markers in a low-risk population: prevalence, association with trisomies and invasive tests

Annika Åhman (1), Ove Axelsson (1,2), Gordan Maras (1), Christine Rubertsson (1), Anna Sarkadi (1), Peter Lindgren (1)
(1) Department of Women's and Children's Health, Uppsala University,
(2) Center for Clinical Research Sörmland, Uppsala University

Objective: To investigate the prevalence of soft markers identified at second trimester ultrasound in a low-risk population and the association of these markers with trisomies and invasive testing.
Design: Prospective observational study.
Setting. Swedish University Hospital.
Population: All women with fetuses examined by ultrasound at 15+0-22+0 weeks gestation between July 2008 and March 2011.
Methods: Cases with soft markers were compared with non-cases with regard to trisomies and invasive testing. Main outcome measures. Prevalence of soft markers, likelihood ratio for trisomies and risk ratio for invasive tests after detection of soft markers.
Results: Second trimester ultrasound was performed on 10 710 fetuses. Markers were detected in 5.9% of fetuses. 5.1% were isolated, 0.7% were multiple and 0.1% were combined with an anomaly. Presence of markers showed a positive likelihood ratio for Down syndrome, but the association (likelihood ratio = 7.1) was only statistically significant for the combined category of any marker (isolated, multiple or combined with anomaly). The risk ratio for invasive testing after the second trimester ultrasound was 24.0 in pregnancies with isolated soft markers compared with those without markers.
Conclusion: In a low-risk population, soft markers were found in 5.9% of fetuses at second trimester ultrasound. The likelihood ratio for Down syndrome was significant only for any marker (isolated, multiple or combined with anomaly). The presence of soft markers increased the incidence of invasive procedures substantially. Soft markers should be noted when information on second trimester ultrasound is formulated, and all units performing fetal ultrasound examinations should have established routines concerning information management when soft markers are identified.

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262.00 PB220 10 years follow up after prenatal transplantation of fetal mesenchymal stem cell in a patient with severe osteogenesis imperfecta.

Cecilia Götherström (1,2), Katarina Le Blanc (2,3), Eva Åström (4), Peter Byers (5), Jahan Taslimi (6), Gail Graham (7), Magnus Westgren (1,8)
(1) Division for Obstetrics and Gynecology, Karolinska Institutet, Sweden
(2) Center for Hematology and Regenerative Medicine, Karolinska Institutet, Sweden
(3) Hematology Center, Karolinska University Hospital, Sweden
(4) Division of Neuro-Pediatric Unit, Karolinska University Hospital, Sweden
(5) Departments of Pathology and Medicine, University of Washington, USA
(6) Orthopedic Unit, Uppsala University Hospital, Sweden
(7) Department of Genetics, University of Ottawa, Canada
(8) Center for Fetal Medicine, Karolinska University Hospital, Sweden

BACKGROUND Treatment with multipotent mesenchymal stromal cells (MSC) has the potential to ameliorate mesodermal disorders.
OBJECTIVE To treat severe osteogenesis imperfecta (OI) with fetal MSC.
METHODS 10 years ago, we treated a fetus with OI type III (COL1A2: c.3008G>A, p.Gly1003Asp) in utero with fetal HLA-mismatched MSC. The procedure was uncomplicated. At the age of 4 months intravenous pamidronete treatment was started due to new vertebral compressions fractures. Donor cells (range 0,1-16,4%) were detected in the bone at 9 months of age. At 8 years of age soon after a surgery, the patient was re-transplanted with $2{,}8x10^6$/kg cells and the effect evaluated until 10 years of age.
RESULTS At 10 years of age, 2 years after the combined surgery and re-transplantation, the patient's ability to walk has improved. She takes dance classes and participates in modified indoor hockey. Over the last 2 years, her linear growth has improved from -6.5 to -6SD. Since birth, 12 fractures and 11 vertebral compression fractures have been confirmed. She has developed scoliosis treated with a brace. The patient has no lymphocyte proliferation, anti-FCS abs, anti-HLA I and II abs, anti-IgG or anti-IgM against MSC donor cells. Donor cell engraftment after re-transplantation is low (0,003%) and limited to bone. Today the patient receives yearly MSC infusions for 4 years to evaluate the effect.
CONCLUSION Our findings suggest that transplantation of allogeneic fetal MSC in OI is safe and re-transplantation is feasible. It is not possible from this single case to conclude on beneficial effects of MSC in OI, but the natural history of this severe form of OI is one of early morbidity and an infant with the same mutation who did not receive MSC treatment succumbed at 5 months of age despite postnatal bisphosphonate therapy.

204.00 PB221 Clinical efficacy and safety of mirabegron treatment for overactive bladder

Anna Almen Christensson (1, 2), Helena Kopp Kallner (1,2), Caroline Elmér (1,2), Isabelle Freiling (1, 2), Christian Falconer (1,2), Daniel Altman (1,3)
(1) Karolinska Institutet
(2) Danderyds Hospital
(3) Stockholm UroGyn

Background: Mirabegron is a first-in class β3 adrenoreceptor agonist drug recently approved for the treatment of overactive bladder (OAB). Available data suggest that mirabegron (Betmiga) is comparable to anticholinergic drugs effectwise and has a favourable safety profile. However, tolerability has not been determined outside clinical trials.
Objectives: The aim of the study is to describe clinical efficacy and safety of mirabegron in a non-selected population of women with OAB.
Methods: In this prospective, open label, observational study patients were treated strictly according to recommendations for mirabegon usage described by the Dental and Pharmaceutical Benefits Agency (TLV). Patients were evaluated with ECG, blood pressure, pulse rate, and subjective outcomes after 2 months of treatment.
Results: 105/ 144 patients in treatment have been evaluated at 2 months. The majority of patients in the study had tried antimuscarinic drugs with poor outcomes or side effects and most patients were referred from gynecologists and general practitioners because of treatment failures. 78 patients (74%) reported a positive effect of mirabegron treatment whereas 24 patients (23%) experienced no effect at all.
Within 2 months 15 patients (14%) discontinued their treatment due to perceived side effects. There were no adverse cardiovascular events and no significant changes in mean blood pressure or heart rate from baseline to 2 months.
Conclusions: In patients with unsatisfactory outcomes following other OAB treatments 74% of patients with mirabegron reported a short-term symptomatic improvement. Mirabegron was well tolerated overall but side effects were more commonly reported than clinical trials have indicated.

Table 1. Reported side effects

Side effects	No. of patients	Side effects	No. of patients
Palpitations	7 (6.7%)	Diarrhea*	2 (1.9%)
Headache*	5 (4.8%)	Gastritis	2 (1.9%)
Dry mouth*	5 (4.8%)	Nausea*	2 (1.9%)
Swellings (finger and legs)	4 (3.8%)	Nightmares/sleep disturbance*	2 (1.9%)
Swellings (eyes and lips)	3 (2.9%)	Blurred vision*	2 (1.9%)
Itching	3 (2.9%)	Dizziness*	2 (1.9%)
Sleepiness*	3 (2.9%)	Increased perspiration*	1 (1.0%)
Vulvitis	3 (2.9%)	Peripheral sensory dysfunction*	1 (1.0%)
Constipation*	3 (2.9%)		

*Side effects not listed by the TLV summary of products characteristics.

Table 2. Cardiovascular effects.

	Baseline	2 months FU
Mean heart rate (bpm)	67.9	69.3
Mean diastolic/ systolic blood pressure (mm Hg)	78.2/ 133.4	78.0/ 130.5

203.00 PB222 Laparoscopic Sacropexy Versus Laparoscopic Pectopexy: A Prospective Randomized Controlled Clinical Trial

Johanna Rulinski (1), Maren Klose (1), Michael Anapolski (1), Karl Günter Noé (1)
(1) Departement of Obstetrics and Gynecology, KKH Dormagen, Germany

Sacral colpopexy is a well established method of apical prolapse correction. Although this technique allows to restore the physiological axis of the vagina, it also bares some potential risks: An injury to the presacral venous plexus, a long term risk of de novo constipation, difficult surgical conditions in obese patients. We developed pectopexy, an alternative method to avoid the presacral preparation: The vagina or cervix is fixed in a hammock-like manner to both iliopectineal ligaments by the use of a synthetic mesh. We conducted a randomized prospective clinical trial to compare these two surgical approaches. 44 patients have undergone a laparoscopic pectopexy and 41 patients were treated by laparoscopic sacropexy. The average operating time (43.1 vs. 52.1 min) and blood loss (4.6 vs. 15.3 ml) were significantly lower in the pectopexy group. No major complications occurred in either group. There were no significant differences between the groups with regard to body mass index, hospital stay duration, voiding difficulties, urinary tract infections and C-reactive protein values in the postoperative period. We reevaluated 42 pectopexy and 41 sacropexy patients after 21.8 months (range 12-35; pectopexy) and 19.5 months (range 12-37; sacropexy). There were one relapse of the apical prolapse in the pectopexy arm and four relapse cases in the sacropexy group. The occurrence of de novo lateral-defect cystocele (0 vs. 5 patients), and constipation (0 vs. 8 patients) were significantly higher in the sacropexy group ($p<0.05$). We conclude that pectopexy is a promising method of apical prolapse correction that warrants further investigation.

90.00 PB223 Use of mid-urethral sling materials and bulking agents in female anti-incontinence surgeries in Denmark, 2010-2011

Lisbeth Drejer (1,2), Bente Nørgard (1), Ulla Darling (2), Rikke Guldberg (1)
(1) Research Unit of Clinical Epidemiology, Institute of Clinical Research, University of Southern Denmark, Odense, Denmark
(2) Department of Gynecology and Obstetrics, Odense University Hospital, Odense, Denmark

The aims were to describe which types of mid-urethral slings (MUS) and bulking agents surgeons used in anti-incontinence surgery in Denmark and to examine a possible difference between regions. We further investigated if there was any difference in the choice of sling material between experienced and inexperienced surgeons.

Methods

This descriptive study was based on data from the Danish Urogynaecological Database (DugaBase). Inclusion criteria were Danish women undergoing first time surgery for urinary incontinence in 2010-2011. The distribution of different surgical procedures and commercial sling materials were presented as proportions for public hospitals in the five regions of Denmark and for the group of private hospitals. Differences between groups were analyzed using the chi-squared test.

Results

The study included data from 2919 first-time surgical procedures. Of these, 48.9%, 38.6% and 12.5% were retropubic MUS (rpMUS), transobturator MUS (toMUS) and bulking procedures, respectively. A total of 10 different slings were used. The most frequently used sling was from Johnson & Johnson. The choice of sling material differed significantly between the regions with regard of both rpMUS and toMUS procedures ($p < 0.001$). Inexperienced surgeons primarily used sling materials from Boston Scientific. Bulkamid® was the only bulking agent registered.

Conclusions

The majority of the procedures were rpMUS which accounted for nearly 50%. The use of commercial sling material varied considerably between regions and according to the experience of the surgeons. Johnson and Johnson trans-vaginal tape® was the most frequently used sling. Bulkamid® was the only bulking agent registered.

401.00 PB224 Comparison of symptoms, effect on quality of life and sexual function in women awaiting pelvic organ prolapse surgery.

Karin Hallstedt (1), Ulf Jakobsson (2), Lousie Thunell (1), Frank Örnfledt Svensson (3), Knut Haadem (4), Lars Hedén (5), Kirsti Paajanen (6), Pia Teleman (1)
(1) Dept Obst Gyn, Skane University Hospital, Sweden
(2) Center for Primary Health Care Research (CPF), Lunds University, Sweden
(3) Dept Obst Gyn, Centralsjukhuset Kristianstad, Sweden
(4) Dept Obst Gyn, Helsingborg General Hospital, Sweden
(5) Dept Obst Gyn, Ängelholm Hospital, Sweden
(6) Dept Obst Gyn, Ystad Hospital, Sweden

OBJECTIVE: To describe the relation between anatomic status and symptoms, effect on quality of life (QoL) and sexual function in women planned for pelvic organ prolapse (POP) surgery.
DESIGN AND SETTING: Descriptive study. Six departments of Obstetrics and Gynaecology in Skåne county, Sweden.
POPULATION: All women scheduled for POP surgery during one year in Skåne county.
METHODS: The Swedish validated versions of the Pelvic Floor Impact Questionnaire (PFIQ-7), Pelvic Floor Distress Inventory (PFDI-20) and Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) were sent to all (n=635) patients planned for POP surgery. Type and stage of prolapse using the Pelvic Organ Prolapse Quantifications system (POP-Q) were obtained from medical records. Questionnaires were filled out at home and sent in by mail.
RESULTS: The response rate was 61,9% (N=393). The most common type of prolapse was that of the anterior compartment (70,3%), followed by the posterior compartment (37,8%) and descent of uterus or vaginal vault (34,7%). Combined prolapse was seen in 39,7%. The severity of prolapse was dominated by stages II (51,9%) and III (43,3%), followed by stages IV (3,7%) and I (0,9%). There were no significant differences in symptom and QoL scores between POP stages, when comparing prolapse in different compartments or when comparing prolapse confined to one compartment with combined prolapse.
CONCLUSION: Symptoms, QoL or sexual function scores could not be connected to any specific type or degree of prolapse in this study.

76.00 PB225 Subjective and objective results of anterior vaginal wall repair in an outpatient clinic. A ten-year follow-up.

Cecilie Hestbech Buch (1), Marianne Glavind-Kristensen (1), Susanne Axelsen (1), Karl Møller Bek (1), Susanne Greisen (1)
(1) Pelvic Floor Unit,Dept. of Obstetrics & Gynecology,Aarhus University Hospital, Denmark

Objective
The purpose of this study was to evaluate the long term subjective and objective outcome of conventional surgical repair of anterior vaginal wall prolapsed in an outpatient setting.

Background
Even though surgical repair of anterior vaginal wall prolapse is a very common procedure, only a few long term follow-up studies have been conducted. Furthermore most studies report solely on anatomical operative results, whereas subjective results are sparsely reported.

Methods
This survey was made as a prospective follow-up study.
From January 1998 until November 2000, 72 consecutive women were operated with primary anterior vaginal wall repair using local anaesthesia in an outpatient clinic. All women had bulge and or dragging symptoms, and objective findings of anterior vaginal wall prolapse, defined and staged according to the International Continence Society (ICS) quantification system. At follow-up the women were offered clinical examination to evaluate anatomical results. Prolapse was graded using established clinical classification system. Furthermore, the patients were asked to fill in a validated symptom and quality of life questionnaire.

Results
Follow-up time was 10 years. Forty (56%) women participated in the study. Thus, 18 (25%) women had died within the ten-year follow-up period and 10 (14%) women were lost to follow-up. At the time of the surgery the median age was 67 (range 37-86).

Anatomical results (figure 1):
At baseline, 72% had stage 2 pelvic organ prolapse (POP) and 28% stage 3.
At the 10 year clinical examination none of the women had stage 0 POP. 20 women (50%) had stage 1, whereas, 13 women (32%) had stage 2 and 1 woman (3%) had stage 3 POP (FIG 1). At the time of follow-up, 6 women (15%) had been reoperated due to recurrence of anterior vaginal wall prolapsed. Three of these women had had a hysterectomy prior to the prolapsed surgery. That is in the group who had previous hysterectomy the recurrence rate was 50% (3 out of 6), whereas in the group with no previous hysterectomy the recurrence rate was 9% (3 out of 34).

Subjective results (figure 2):
Before surgery 93 % of the women reported bulge symptoms. 10 years after surgery 65 percent of women had no bulge symptoms. 20 % of women still had bulge symptoms once a month or more at the time of follow-up. 74 % of the women in an overall assessment considered themselves better or much better after surgery.

Conclusions
At 10 year follow-up 65 percent of women was relieved from their bulge symptoms by a low risk operation, and 74% still considered themselves better or much better than before the operation. However, 15% of the women had been reoperated and 20% still experienced bulge symptoms once a month more. Moreover, previous hysterectomy seems to greatly increase the risk of recurrence.

157.00 PB226 A novel and effective treatment of Urethral Pain Syndrome.

Björn Lindström (1,2), Dan Hellberg (1,2), Annika Lindström (1,2)
(1) Department of Women's and Children's Health, Uppsala University, Sweden
(2) Centre for Clinical Research, Falun, Sweden

Introduction: The urethral pain syndrome (UPS) is diagnosed as urethral pain, often with concomitant urgency with negative urine culture or no other obvious causes.
Method: Urethral instillations of 2 ml clobestasol propionate 0,05 %cream (Dermovate®) and 2 ml lidocaine 2% gel (Xylocaine®) in 30 women with UPS in 1999 – 2006 is evaluated retrospectively. Instillations were given approximately once a week until the patient improved. Between 1 and 15 (median 3) instillations were given. In substudy 1 a review was done of the medical records to register the treatment effect at the end of the treatment and any relapses 6 months thereafter. Substudy 2 was a follow-up at least 5 years after last treatment and included a written questionnaire to the patients.
Results: Substudy 1 (n=30): By the end of the treatment 18 patients had no symptoms and 12 were improved. 5 patients had relapsed within 6 months.
Substudy 2 (n=28), more than 5 years later: 28 responded to the questionnaire. Four patients remained with no symptoms, 18 remained improved, and 6 were the same as before treatment. 20 patients thought the treatment very effective, 5 rather effective and 3 patients indicated poor effect. Twenty-six patients would ask for retreatment in case of relapse, two patients would not. No side effects, except transient pain, were reported.
Conclusion: This retrospective study suggests that urethral instillation of clobetasol proprionate and lidocaine is effective in treating women with UPS. Randomized control studies are warranted.

307.00 PB227 Postoperative stay in hospital after simple prolapse operations in Sweden 2006-2013.

Emil Nüssler (1), Mats Löfgren (2), Emil Karl Nüssler (3)
(1) Faculty of health sciences, Aarhus university, DK-8200 Aarhus N, Denmark
(2) The National Quality Register of Gynaecological Surgery, Umeå University, Sweden
(3) The National Quality Register of Gynaecological Surgery, Umeå University, Sweden

Prolapse surgery contains procedures of a varying degree of difficulty. To be able to compare time spent in hospital postoperatively between clinics we have selected a group of ”simple” operations containing only primary operations on healthy patients (ASA 1 or 2) operated only for anterior or/and posterior colporrhaphy. These are standardized operations with very few complications.
On average Swedish departments have diminished postoperative stay in hospital for ”simple” prolapse operations from 1,19 to 0,33 days. There is, however, a persistent, huge difference between clinics during the whole period. The average stay in hospital postoperatively is 20 times longer in the clinic with the longest stay time compared to the clinic with the shortest.
We found no difference between ”long-stay” and ”short-stay” clinics regarding surgical complications, patient-reported pain, patient-reported satisfaction with hospital stay time or patient-reported degree of improvement.
All clinics reduced their hospital stay over the observation time but, with few exceptions, the ”fast clinics” remain fastest, and ”slow clinics” remain slowest.
If hospital stay time was based on medical evidence, the clinics should have roughly the same mean time of postoperative stay.
Length of hospital stay postoperatively follows geographic boundaries: one does what ones neighbors do, within the counties, and the counties follow each other within their regions.
Conclusion: Hospital stay postoperatively follows not evidence or medical reasons but is mainly a result of local traditions and local political decisions. Six years of annual reports have had only minor impact on the differences between clinics.

40.00 PB228 Objective cure rate and subjective satisfaction after pelvic organ prolapse surgery

Ingrid Volløyhaug (1), Merete Myklebost (1), Frida Andræ (2)
(1) Department of Gynaecology and obstetrics, Trondheim University Hospital, Norway
(2) Department of Gynaecology and Obstetrics, Nordlandssykehuset Bodø, Norway

Introduction: There are large variations in reported frequency of recurrence, reoperations and patient satisfaction after surgery for pelvic organ prolapse (POP). In Norway there is no mandatory registration of POP surgery. The aim of this study was to compare the results after surgery at Trondheim University Hospital to international standards and to other hospitals in Norway.
Methods: A total of 253 patients underwent surgery for POP at Trondheim University Hospital in the time period 01.01.2011 -31.12.2012. The patients were registered in an internal quality control database by a retrospective review of the medical records. In September 2013 all patients who underwent POP surgery in 2011 and 2012 received a questionnaire regarding symptoms of POP, complications and degree of satisfaction with the operation.
Results: 27% of the patients operated in our unit had undergone previous POP surgery. 147 patients (58%) had come for a control by the end of 2013. The objective cure rate (POP 0-1) in the operated compartment among controlled patients was 70%. The subjective satisfaction rate (improved or cured) was 87% for patients who responded to the questionnaire (n=135). 21% of these patients stated that they had had complications, mainly urinary tract infections (17%) and pain (10%), but only 3% had persisting pain.
Conclusions: Our results are consistent with international standards. Comparing our objective cure rate to Ullevål in Oslo, Norway (83,6%), we have an improvement potential. We will proceed our quality control registrations performing annual reports aiming to improve our operative patient care.

212.00 PB229 Intra vaginally applied oxytocin hormone improves postmenopausal vaginal atrophy

Shahla Hamza Al-Sagi (1), Kerstin Uvnäs-Moberg (2,3), Aino Fianu Jonasson (1)
(1) Karoliniska Institutet, CLINTEC, Division for Obstetrics and Gynecology, Sweden
(2) Swedish University of Agricultural, Department of Animal Environment and Health
(3) School of Life Science, University of Skövde, Skövde, Sweden

387.00 PB231 A decrease in the incidence of Chlamydia Trachomatis among Danish women requesting termination of pregnancy in first trimester

Sidsel Boie (1), Caroline Juhl (1), Pinar Bor (1)
(1) Department of Obstetrics and Gynecology, Regional Hospital of Randers, Denmark

Background: The incidence of Chlamydia Trachomatis (Chlamydia) infection reported in European countries varies and depends highly on the population screened. In Denmark the incidence of Chlamydia infection among women requesting termination of pregnancy in the first trimester increased from 9,3% in 1985 to 15,6% in 2005. Several developed countries including Denmark have initiated Chlamydia screening and treatment programmes for this population.
The main aim of the present study is to investigate the incidence of Chlamydia infection, almost 10 years after the latest report, in order to evaluate the need of routine screening for Chlamydia among women requesting first trimester termination of pregnancy in Denmark.

Methods: Retrospective study. All patients (n=1390) admitted to the Abortion Clinic, Regional Hospital of Randers, between 1st of January and 31st of December 2013 requesting termination of pregnancy in the first trimester were included. Endocervical swabs were used to test for Chlamydia.

Results: Until now 110 patients records have been analysed. The mean age of the patients was 31 years old (ranged 17-43). Gestational age varied from 28 to 96 days. Only 5 out of 110 (4,5%) women were found to be positive for Chlamydia and treated before abortion.

Conclusion: Our preliminary result shows a decrease in Chlamydia infection among Danish women requesting termination of pregnancy in the first trimester, suggesting that increased public awareness on sexual transmitted diseases may have a great impact on the incidence. The need of routine screening for Chlamydia prior to abortion could be re-evaluated.

350.00 PB232 Visibility And Dimensions Of the Labia Minora

Henrik Christian Drue (1), Rikke Guldberg Sørensen (1), Janni Uyen Hoa Lam (2), Annemette Wildfang Lykkebo (1)
(1) Dept. of Obstetrics and Gynecology, Kolding Hospital, Kolding, Denmark
(2) Dept. of Clinical Epidemiology, Odense University Hospital, Odense C, Denmark

OBJECTIVE: To describe the normal vulva and correlate the visibility of the labia minora to the women's view on their genitals and to define the normal labia size in order to be able to counsel women with complaints of perceived large labia minora.

MATERIALS & METHODS: 250 Caucasian women between 18 to 50 years referred to Dept. of Gynaecology for various reasons were asked if they found their genitals normal. The width of the labia minor on the outside and on the inside was measured and it was observed whether their labia minora were hidden by their labia majora or not.

RESULTS: 45% of the women had their labia minor hidden by the labia majora. 55% of the women had their labia minora visible. 87% found their genitals normal. 13% found their genitals abnormal. 74% of the women who considered themselves abnormal had visible labia minora, compared to 52% in the group who found their genitals normal. The average outside measurement was: left 15.5mm (range 1-40), right 15.9mm range (range 1-45). The average inside measurement was: left 32.1mm (range 2-65), right 32.3mm (range 2-60). The outside measurement was most accurately reproduced, thus the normal distribution was calculated for the outside measurement. There is no statistically significant difference between the left and right outside measurements.

CONCLUSION: It is more common that labia minora are visible (55%). Among women that find their genitals abnormal, 74% had visible labia minora. There is a broad variety in the size of the labia.

353.00 PB233 Hysterectomy in Iceland: Incidence and changes in operative techniques during the years 2001-2010.

Jens A. Gudmundsson (1), Kristín Hansdóttir (2)
(1) Dept. of Obstetrics and Gynecology, Landspitali University Hospital
(2) University of Iceland

We have evaluated the 10-year incidence and changes in treatment of ectopic pregnancy in Iceland (years 2000-2009). **Materials and methods:** Information was gathered about all diagnosed cases,, method of treatment and length of hospital stay. Annual incidence was calculated and changes in incidence, methods of treament and hospital stay compared between the 5-year periods 2000-2004 and 2005-2009.. **Results:** The average annual incidence was 15.6/1000 pregnancies and 12.9/10000 women during the whole study period. There was a significant reduction of the annual incidence between the two 5-year periods from 17.3 to 14.1/1000 pregnancies ($p<0.01$) and 14.1 to 11.7/10000 women ($p<0.01$). Surgery was the first treament in 94.9% of the women, methotrexate in 3.2% and expectant management in 1.9%. The proportion of surgically treated women went from 98.0% to 91.3% between the 5-year periods concomitant to increased medical treatment from (0.4% to 6.4%; $p<0.0001$). The proportion of laparoscopic treatment increased between the two 5-year periods from 80.5% to 91.1% ($p<0.0001$) of all surgical treatments. In the Landspitali University Hospital the increase was from 91.3% to 98.1% ($p<0.001$). Mean hospital stay after open surgery was 3.2 days but 0.9 days after laparoscopic treatment. **Conclusions:** There has been a reduction of the incidence of ectopic pregnancy in Iceland comparable to the development in neighbouring countries. Management has changed with increased use of laparoscopic surgery, medical and expectant treatment.

456.00 PB234 Barbed sutures for closing myometrial defects in laparoscopic myomectomy. A new priciple in laparoscopic suture technique. First case series.

Jens A. Gudmundsson (1), Audur Smith (1)
(1) Dept. of Obstetrics and Gynecology, Landspitali University Hospital, Reykjavík, Iceland

Barbed sutures constitute a new principle in suture technique. The suture has small notches cut in a helical way around the thread circumference leading to suture selv anchoring. Compared to traditional sutures the tensile strength is evenly distributed throughout the suture. Obviating knotting results in less suture material used, less inflammatory tissue reaction and surgical time is saved. Barbed sutures have been used to secure closure of the myometrium in laparoscopic myomectomies (Einarsson, JI & Greenberg JA (2009). Barbed suture, now in the toolbox of minimally invasive gyn surgery. ObG Management, *21*(9), 39-40,41.
Materials and methods: A series of our first 4 laparoscopic myomectomies, with the use of barbed sutures, is described. The myomas, the size of 6-8 cm, were transmural and submucous in 2 cases, intramural in 1 case and parametrial in 1 case,. Myometrium was infiltrated with dilute vasopressin in the line of incision and the myomas dissected out using bipolar diathermy to secure hemostasis. Myometrium was closed in 3 layers with unidirectional, absorbable, looped barbed sutures, V-loc^{TM} 180 2-0. The myomas were removed with a morcellator. Bleeding was 20-90 ml and the women were discharged on the same day or the day after operation. Ultrasonography and MR imaging showed complete healing of the myometrium.
Conclusions: With barbed sutures laparoscopic myomectomy is made easier and saver. Laparoscopic myomectomy with the use of this new suture technique should replace open myomectomy in selected cases, where hysterectomy is to be avoided and fertility preservation is important.

210.00 PB235 Sexually transmitted infections at a Norwegian Sexual Assault Centre

Cecilie Therese Hagemann (1, 2), Svein Arne Nordbø (3,4), Arne Kristian Myhre (1,5), Kari Ormstad (6), Berit Schei (1,2)
(1) Dept. of Public Health and General Practice, NTNU, Trondheim, Norway
(2) Dept. of Obstetrics and Gynaecology, St. Olavs Hospital, Trondheim, Norway
(3) Dept. of Medical Microbiology, St. Olavs Hospital, Trondheim, Norway
(4) Dept. of Laboratory Medicine, Children's and Women's Health, NTNU, Norway
(5) Resource Centre about violence.., St. Olavs Hospital, Trondheim, Norway
(6) Division of Forensic Medicine, National Institute of Public Health, Oslo, Norway

Objectives The objective was to describe the prevalence of sexually transmitted infections (STIs) and blood-borne viruses (BBVs), and prophylactic treatment offered to female postpubertal patients attending a Norwegian Sexual Assault Centre (SAC). We wanted to evaluate whether STIs diagnosed at the initial visit might be assault-transmitted, and to explore whether background and assault characteristics were associated with diagnosed STI/BBV.
Methods We included postpubertal females ≥ 12 years of age attending the SAC within one week of the assault. Data were collected from records. We conducted a retrospective, descriptive study, and used logistic regression analysis.
Results Among 412 patients with a median age of 21 years, 35 patients had an STI (8.5%), two of which probably were assault-transmitted. *Chlamydia trachomatis* was the dominating agent, detected in 25 patients (6.4%). At serology screening, 3.7% tested positive for hepatitis C and/or hepatitis B core antibody. Patient age 16 – 19 years was associated with STI, while BBV positives were older. Non-Western assailant was associated with STI, while substance abuse was associated with both STI and BBV.
In order to prevent potential transmission of STI not identified at the initial visit, 91% accepted prophylaxis against bacterial STI, while anti-viral prophylaxis was offered to less than one fifth of the patients.
Conclusions The *C trachomatis* prevalence among the sexual assault patients was lower than in a comparable clinical population. The STI was suspected to be assault-transmitted in only two cases.

446.00 PB236 Treatment of extrauterine pregnancy – experience from the Helsinki metropolitan area

Maria Lopmeri (1), Oskari Heikinheimo (1), Mervi Halttunen-Nieminen (1)
(1) Dept Ob&Gyn, Helsinki University Central Hospital, Helsinki, Finland

The treatment of extrauterine pregnancy has evolved greatly during the last decades. We evaluated the treatment of ed 230 women with suspected extrauterine pregnancy during 2010 in our large De-partment of OB & Gyn in Helsinki and Eat our department. Altogether 153 patients had a spontaneous pregnancy (67%), 38 had a contraceptive failure (17%) and 32 patients (14%) had had undergone in-fertility treatment prior to this pregnancy. 140 patients were treated conservatively (65 follow-up; 75 with metotrexate) and 89 patients had either laparoscopy (N=87) or laparotomy (N=2).
The treatment was chosen according to the severity of patients' symptoms, hCG-levels and hemoglo-bin levels. 140 (61%) patients were treated conservatively (65 [28%] follow-up only; 75 [32%] were treated with methotrexate [MTX]) and 89 (39%) patients underwent either laparoscopy (N=87) or lapa-rotomy (N=2). The metotrexate MTX dose administration was repeated infor 5 patients. In this group 8 (11%) patients needed operative treatment. In the operatively treated group 82 (92%) women had un-derwent salpingectomy and 3 (3%) had salpingostomy, whereas 4 (4%) patients had spontaneously aborted the extrauterine pregnancy and had laparoscopy due to hemoperitoneum.
During 3 years follow up there were altogether 137 new pregnancies: 47 (72%) in the follow-up only group, 47 (63%) in the metotrexated MTX-treated group and 43 (48%) in the operatively treated group.
We conclude that he treatment of extrauterine pregnancy can be invidualized based on clinical findings and serum hCG levels. Distribution of patients into different treatment groups was fairly even and the prognosis for the subsequent pregnancy high regardless of the treatment modality. The rate of salpin-gectomy was high among surgically treated women.

194.00 PB237 Effects of life-style interventions on the expression of GPER, PGRMC1 and PGRMC2 in the endometrium of obese PCOS patients

Mariana Hulchiy (1), Åsa Nybacka (1), Allan Calaby (1), Lena Sahlin (1), Angelica Linden Hirschberg (1)
(1) Department of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden

Background: PCOS is one of the most common endocrine disorders in fertile age women. Over-weight is highly prevalent and 30-70% of PCOS women are considered obese. Life-style changes are an important therapy since weight loss and exercise improve all parameters of PCOS. However the underlying mechanism for beneficial effects of an intervention therapy is largely unknown.
Aim: To determine the effect of life style intervention on the expression and distribution of membrane, non-genomic receptors: G protein coupled estrogen receptor 1 (GPER), progesterone receptor membrane component 1 (PGRMC1) and 2 (PGRMC2) in the endometrium of obese women with PCOS and BMI matched controls.
Material and methods: Endometrial levels of mRNA and immunostaining of GPER, PGRMC1 and PGRMC2 were evaluated in the mid-follicular phase of the menstrual cycle in 18 obese women with PCOS, before and after 3 months of life style intervention.
Results: After life-style intervention BMI was reduced and menstrual pattern was improved in 65% of obese women with PCOS. Although serum levels of estradiol-17β (E2) were not significantly changed the levels of GPER mRNA were reduced after life-style intervention ($p<0.05$) while protein levels remained unchanged. The mRNA and protein levels of PGRMC1, PGRMC2 were not affected by life-style intervention.
Conclusions: Life-style intervention down-regulated GPER expression in the endometrium of obese PCOS women particularly in the group with improved menstrual function. The present data suggests that altered GPER expression might be associated with endometrial dysfunction in PCOS patients.

218.00 PB238 Is ovarian reserve affected by body mass index?

Josephine Hyldgaard (1), Hans Jakob Ingerslev (2), Niels Tørring (3), Helen N Madsen (3), Pinar Bor (1)
(1) Department of Obstetrics and Gynaecology, Regional Hospital of Randers, Denmark
(2) Department of Gynaecology and Obstetrics, Aarhus Universitetshospital, Denmark
(3) Department of Clinical Biochemistry, Aarhus Universitetshospital, Denmark

Background; The antral follicle count (AFC) in the early follicular phase correlates with ovarian reserve. The primordial follicle pool decreases with reproductive aging and low AFC is an ultrasound marker of ovarian aging.
Obesity is associated with infertility and decreased ovarian reserve. Therefore, we hypothesize that AFC would be lower in overweight and obese women than in normal weight women. The aim of this study is to assess whether AFC varies by body mass index (BMI).
Methods; Preliminary data from a prospective observational study. Until now 24 women, aged 20-45, with menstrual cycles in the normal range, were included.. Exclusion criteria were hormonal therapy, contraception, polycystic ovarian syndrome and previous gynecologic surgery.
A transvaginal pelvic ultrasound was performed to measure ovarian volume and AFC within the first 9 days of a menstrual cycle.
Results; Mean age of women was 37 ±,5 years. Eleven women had normal body mass index (BMI ≤ 25 kg/m^2), and thirteen women were in the high BMI group (> 25 kg/m^2).
Median AFC was 5 for normal weight and 4,5 for high BMI group (p=0,7053). Low AFC (<4), was found in 42,9% of women with normal BMI and in 57,5% women with high BMI (p= 0,851)
Median ovarian volume was 7,46 and 5,50 ml in normal weight and high BMI groups, respectively (p=0,4686).
Conclusions; These preliminary data indicate that ovarian reserve measured by AFC is not associated with BMI, but the low number of patients enrolled do not allow firm conclusions.

238.00 PB239 Intraoperative Superior Hypogastric Plexus Block for Pain Control in Abdominal Hysterectomy.

Hanna Håkansson (1), Susanne Ledin Eriksson (2), Peter Smith (3)
(1) Dept of Gynaecology and Obstetrics, Gavle Hospital, Sweden
(2) Dept of Anaesthesiology, Gavle Hospital. Sweden
(3) Dept of Gynaecology and Obstetrics, Gavle Hospital, Sweden

Background: Total abdominal hysterectomy (TAH) results in substantial postoperative pain. Morphine is a mainstay of postoperative analgesic regimes after a TAH, but have undesirable effects e.g. sedation and vomiting. Several strategies have been tried to lower the opioid consumption in order to avoid these side-effects, with varying results. Local anaesthetics in the abdominal wall is not sufficient. The superior hypogastric plexus (SHP) is central in the transmission of pelvic pain. The aim of this study was to evaluate the effect of an intraoperative SHP-block on post-operative pain.
Method: A randomized, double-blind, controlled, clinical trial including 67 patients scheduled for TAH for a benign indication. The SHP-block was performed intraoperatively. Twenty ml of ropivacaine 7,5 mg/ml or saline was injected in the area of the SHP. The primary outcome measure was postoperative opioid consumption. Secondary outcome measures were patients self-assessment of pain (VAS-scores),
Results: The SHP-block group used significantly less opioids than the placebo group. VAS-scores showed significant less pain in the treated group.
Conclusion: SHP- block has been used for chronic pelvic pain (mainly cancer) applying ultrasound or DT to reach the plexus. The SHP-block has, to our knowledge, previously not been used during abdominal hysterectomies, with the advantage of an easy access to the plexus. It is our belief that the SHP-block could have a place as pain-relief in abdominal hysterectomies. It is an easy, low cost, method with a significant effect on pain.

372.00 PB240 Should Chlamydia screening be offered to women with miscarriage?

Caroline Juhl (1), Pinar Bor (1)
(1) Dep. of gynecology and obstetrics, Regional Hospital, Randers, Denmark

Background; *Chlamydia trachomatis* (Chlamydia) is the most prevalent sexually transmitted disease in Denmark (7.8 %). Worldwide there is approximately 100 million new Chlamydia cases a year.
Chlamydia screening is routine in Denmark for all women seeking first trimester abortion, whereas there are no recommendations for Chlamydia screening in women with miscarriage.
The main purpose of this study is to estimate the prevalence of Chlamydia infection among women with miscarriage and evaluate the need of routine Chlamydia screening to these women.

Methods; Prospective study. All women with miscarriage attending the Department of Obstetrics and Gynecology, Regional Hospital of Randers (April 2013 - June 2014) are included. Urine samples and self collected vaginal swabs are analysed for the presence of Chlamydia.

Results; The study is still ongoing. Until now 50 women aged 18 - 44 years old, have been included. Gestational age at the time of miscarriage ranged from 5+0 to 12+5 weeks. The presence of Chlamydia was not detected in any of the included women.

Conclusion; Our preliminary results so far suggest that the prevalence of Chlamydia infection in women with miscarriage is probably not common. However, the present study needs to fulfill the inclusion period, and larger studies are needed, before a clear conclusion can be drawn about whether the routine screening for Chlamydia should be offered to women with miscarriage.

103.00 PB241 Predicting painful or difficult intrauterine contraceptive device insertion in nulligravid women

Janina Kaislasuo (1), Oskari Heikinheimo (1), Pekka Lähteenmäki (1), Satu Suhonen (2)
(1) Department of Obstetrics and Gynecology, University of Helsinki, Finland
(2) Centralized Family Planning Department, Helsinki, Finland

OBJECTIVE: The objective was to examine factors predicting difficult or painful intrauterine contraceptive device (IUCD) insertion in nulligravid women. The primary objective was to assess the effects of uterine size and flexion angle measured by pre-insertion ultrasonography (US). Menstrual history and background characteristics also were assessed.
METHODS: Nulligravid women seeking contraception were given the choice between the identically sized levonorgestrel-releasing intrauterine system and a copper-releasing intrauterine device with differing insertion tubes. Women were interviewed and pelvic examination, including vaginal US, was performed prior to insertion. Insertion difficulties and pain intensity were recorded and assessed against uterine measurements and background characteristics.
RESULTS: Most insertions were easy (n = 144, 89.4%) and only two (1.2%) failed. Most women had uterine measurements smaller than the studied devices. Small uterine length (odds ratio [OR] 4.21, 95% confidence interval [CI] 1.01-17.52, P= 0.05), small cervical length (OR 3.83, 95% CI 0.98-14.97, P= 0.05) and a steep flexion angle (OR 12.09, 95% CI 2.92-50.02, P= 0.001) predicted difficulties at insertion and small uterine fundal width a more painful insertion (OR 3.89, 95% CI 1.82-8.31, P< 0.001). History of severe menstrual pain was the strongest predictor of insertion pain (OR 15.00, 95% CI 2.13-105.62, P= 0.007).
CONCLUSION: Although the majority of women had measurements smaller than the studied devices, most insertions were uneventful. Dysmenorrhea was the strongest predictor of pain. While small uterine measurements were associated with difficult insertion, the effects of these measurements and a steeper flexion angle on insertion were inconsistent. Thus, routine use of US prior to insertion is unnecessary.
CLINICAL TRIAL REGISTRATION: ClinicalTrials.gov, www.clinicaltrials.gov, NCT01685164

101.00 PB242 Conservative therapy with Gonadotropin-Releasing Hormone Agonist on uterine arteriovenous malformation in a patient with congenital heart disease.

Kinue Katano (1), Takeshi Sato (1), Yukio Hattori (1), Eita Mizutani (1), Mayumi Sugiura (1)
(1) Department of Obstetrics and Gynecology, Nagoya City University, Japan

Uterine arteriovenous malformation (AVM) is rare but causes life-threatening genital bleeding. Uterine artery embolization (UAE) is usually a first choice to avoid hysterectomy. We report a case of uterine AVM with congenital heart disease diagnosed just after miscarriage, treated with successful conservative therapy of Gonadotropin-Releasing Hormone Agonist (GnRHa).
Patient: 20-year-old female, married, non-gravida.
She was performed operation of endocardial patch closure for atrium septum defect (ASD)/ endocardial cushion defect, incomplete type in 10 years old. Recanalization occurred, nevertheless she had dropped out of follow-up for ten years.
She got pregnant naturally, and was admitted to former hospital for subchorionic hematoma. Echocardiography findings showed large ASD and pulmonary arterial hypertension with no vestige of repair operation. She was referred to our hospital for perinatal care in the14th gestational week, resulted in stillbirth after 11 days, being transferred into CCU for heart failure. After one month of temporary improvement of physical status, she had heavy genital bleeding. Transvaginal ultrasound with colour Doppler scan found suspicious uterine AVM in posterior wall, which magnetic resonance imaging confirmed. She had no indication of heart operation for low cardiac function. She refused UAE for fear of paradoxical embolism. She also refused hysterectomy. After one year of administration of GnRHa, her uterine AVM lesion disappeared. Her regular menstrual periods came again after two months without hypermenorrhea. No uterine AVM lesion has been detected in her uterus after two years since discontinuing of GnRHa. Her cardiac function has improved with her possibility of cardiac disease remedy.

215.00 PB243 Immediate Insertion of the LNG-IUS after Early Medical Abortion

Riina Korjamo (1,2), Maarit Mentula (1), Oskari Heikinheimo (1,2)
(1) Helsinki University Central Hospital, Department of Obstetrics and Gynecology
(2) University of Helsinki, Faculty of Medicine

Objective: To compare expulsions of levonorgestrel containing intrauterine system (LNG-IUS) inserted immediately (within 3 days) vs. later (2-4 weeks) after medical abortion <9 weeks of gestation.
Study design: A randomized controlled study. Women undergoing medical abortion <9 weeks gestation and choosing LNG-IUS for contraception were recruited and randomized to immediate vs. delayed insertion (control) of IUS. Expulsions, complications and bleeding profiles were recorded.
Results: 55 subjects were randomized to immediate and 53 to delayed insertion of IUS. LNG-IUS was inserted immediately to 51 (93%) and after 2-4 weeks to 47 (89%) women. The follow-up visit at 2-4 weeks was attended by 50 (91%) and 49 (92%) subjects, respectively. There was one expulsion in both groups, 2.3% in immediate vs. 3.0% in delayed group. There were also 5 cervically displaced IUSs in the immediate group. The rate of expulsion and displacement at 3 months was 14.0% and 3.0% respectively (p=0.131).
There were 6/50 (12.0%) vs. 2/49 (4.1%) (p=0.269) infections at 2-4 weeks follow-up visit. Five infections in the immediate group were mild and treated by antibiotics p.o. The sixth one had also expulsion with bleeding and resulted in abrasion because of residua and infection. Both patients in the delayed group undervent curettage because of residua and infection. Only one patient in control group received blood transfusion after the abrasion because of incomplete abortion. There were no major complications such as uterine perforations or severe infections.
Conclusion: Immediate insertion of LNG-IUS is an important alternative to ensure contraception after early medical abortion.

432.00 PB244 Change in hormonal contraception practice: How do we ensure a shift without scaring women from these products

Øjvind Lidegaard (1)
(1) Dept of Gynaecology, Rigshospitalet, University of Copenhagen

Objectives. Previously, new scientific knowledge about thrombotic risks with use of hormonal contraception resulted in pill scars. In Denmark, a majority of women have in few years shifted from high to low risk products without an overall decline in use of hormonal contraception. Could other countries get inspiration from the Danish experiences?
Methods and Results. The strategy for the massive shift from high to low risk contraceptive products had six elements. First, the scientific community in Denmark relatively rapidly recognised the validity of a majority of new epidemiological studies, demonstrating a differential risk with different progestogen types. Secondly, the Danish Society of Obstetrics and Gynaecology at an early stage launched a summary of the new evidence together with updated clinical guidelines. Thirdly, the National Health Authorities asked clinical experts to elaborate a “dear doctor letter” which informed rather than warned about the thrombotic risks with use of hormonal contraception, and outlined simple clinical advises, e.g. to start women on low-risk products, and to shift women on high risk products to low risk products, unless they previously had bad experiences with the latter. Fourth, we convinced the media (television and newspapers) to bring sound information rather than dramatic soap on the new scientific evidence, including clear clinical messages. Fifth, the health authorities published on-line data on the success of the shift already a year after the efforts were initiated, with a further motivation for shifting as consequence. And finally, we informed about the significant reduction in venous thromboses in young women observed with the shift.
Conclusion. A massive shift in hormonal contraceptive practice is possible without a pill scare as consequence. It demands a coordinated effort from scientists, clinical societies, health authorities and media.

345.00 PB245 Postoperative events after hysterectomy – what are the differences when the patient report severe complications / problems but the physician evaluates it as without complication.

Marielle Sandström (1), Mats Löfgren (1)
(1) Department of Clinical Sciences, Obstetrics and Gynecology, Umeå University, Umeå, Sweden

Objective: To investigate a group of cases were patient's assessment of prevalence of severe troubles or complications stands in conflict with the doctors opinion.

Methods: In the Swedish register of gynaecological operations patients fill in a self assessed questionnaire 8 weeks after operation. The responsible doctor receives the questionnaire answers and also evaluates it.
I the register 705 women who had undergone hysterectomy on a benign indication had assessed that they had experienced severe postoperative troubles or complications were, however, according to the doctors' judgements complication free.

Results: 10% of the patients were assessed, according to the author's review of data, to have had severe complications, 22% to have had minor complications, 29% to be complication free and without obvious reason to why they assessed that they had a severe complication. 39% were assessed complication free but had either prolonged recovery time, new hospital stays, reoperation, or a large number of days with pain treatment. Patients frequently reported a number of symptoms, the most common being pain, fatigue, bowel-, faeces- and urinary problems. The number of patients expressing strong discontent was few.

Conclusions: Due to the large number of complications there to have been a measure of negligence in the doctors' assessments or registration errors. However the amount of patients where severe postoperative problems could not be found were also substantial. The health service should at least respond to patients self reporting severe postoperative problems and asking for contact.

185.00 PB246 Increased levels of procoagulant microparticles in women with recurrent miscarriage associated or not with the antiphospholipid syndrome

María-Ángeles Martínez-Zamora (1), Jordina Munrós (1), Montserrat Creus (1), Dolors Tàssies (2), Juan Carlos Reverter (2), Juan Monteagudo (2), Francisco Carmona (1), Juan Balasch (1)
(1) Department of Gynecology, Hospital Clínic of Barcelona, Barcelona, Spain
(2) Hemotherapy and Hemostasis Unit, Hospital Clínic of Barcelona, Barcelona, Spain

INTRODUCTION:
Microparticles (MPs) are high thrombogenic phospholipid vesicles that have been associated with different thrombotic conditions. Few studies have investigated MPs in recurrent miscarriage (RM) patients with contradictory results.
The antiphospholipid syndrome (APS) is a common acquired prothrombotic condition characterized by vascular thrombosis and pregnancy morbidity, including RM. Production of MPs in APS patients may represent a new pathogenic mechanisms for the complications of this disease.
We evaluated MPs in patients with RM associated with the APS.
METHODS:
The study group was composed of 50 patients who had previously been diagnosed with primary APS and had ≥ 3 consecutive first trimester spontaneous abortions (APS group). The first control group included 50 patients with ≥ 3 consecutive first trimester spontaneous abortions of unknown etiology (uRM group). The second control group was composed of 50 healthy women having at least one healthy child after an uneventful pregnancy, and having no history of pregnancy loss (FER group).
RESULTS:
APS and uRM groups had higher levels of MPs compared with fertile patients (MP number $x10^3$/ml plasma [mean±SD]: Group APS: 18.5 ± 13.6; Group uRM: 16.3 ± 13.8; Group C: 9.7 ± 4.6) (P <0.0001 and P 0 0.009, respectively). There were no statistically significant differences in MP levels between APS and uRM groups.
CONCLUSIONS:
APS patients with RM and uRM patients have increased levels of MP compared to healthy fertile controls. MP levels in APS and uRM groups are similar, suggesting a role of MPs in th pathogenesis of RM with or without antiphospholipid antibodies.

402.00 PB247 Second generation endometrial ablation, short and long term complications and follow up, a retrospective study

Anne Munch (1), Huda Majeed (1)
(1) Department of Gynaecology and Obstetrics, Regional Hospital Viborg, Denmark

Background
Endometrial destruction has been used to treat female vaginal bleeding disorders since 1993.
Objective
To evaluate outcome and frequency of complications following 2nd generation endometrial ablation (Thermachoice, Thermablate and Cavaterm) performed at the Department of Gynaecology and Obstetrics, Regional Hospital Viborg.
Methods
Retrospective study of medical records on patients who underwent endometrial ablation from 2005 to 2011.
Results
In total 318 patients were treated with 2nd generation endometrial ablation. The average age was 42 years and an average BMI was 27,4.
The indications of treatmeant were primarily menorrhagia, metrorrhagia and dysmenorrhoea.
In total 26 patients (8,2%) were submitted with pains within the first postoperative month. and most often they were treated with simple analgetics and discharged shortly thereafter.
Postoperative complications such as incontinens, infection, pregnancy and endometrial cancer were present in only 9 (2,83%) cases.
After the procedure 77 (24,2%) patients were referred to the department again primarily due to lack of effect of the ablation or relapse of the initial bleeding disorder. The median time of referrence after the endometrial ablation was 19,7 months (interval 1-77 months).
In total 70 patients (22%) eventually underwent hysterectomy, 51 patients (73%) due to lack of effect of the treatment or relapse of the bleeding problem.
Conclusion
2.generation endometrial ablation is an easy, safe and quick way to treat female bleeding disorders.
The frequency of complications is low both during and after the procedure.
In 76% of patients the treatment was succesfull. The number of patients who required further treatment such as hysterectomy is in accordance with other studies.

30.00 PB248 Cinnamon and Clotrimazole in treatment of vulvovaginal Candidiasis: A double blind study

Roya Najafi (1), Fatemeh Nahidi (2), faraz Mojab (3), Hamid Alavimajd (4)
(1) M.Sc. Student , Shahid Beheshti University of Medical Sciences, Tehran, Iran
(2) Department of Midwifery, Faculty of Nursing and Midwifery, Shahid Beheshti University, Tehran, Iran
(3) Department of Pharmacogenosy, Faculty of pharmacy, Shahid Beheshti University, Tehran, Iran
(4) Department of Biostatistics, Faculty of Paramedical, Shahid Beheshti University, Tehran, Iran

Objective
Vaginitis is a common problem in primary health care of developing and developed countries. Vulvovaginal candidiasis (VVC) accounts about 25% of all cases of vaginitis. Although standard treatments are available for VVC, general outlook toward the use of biotic compounds have led pharmaceutical researches in recognition of natural resources for treatment of variety of disease, including VVC. Considering the previous reports of fungicidal and bactericidal elements of cinnamon extract in *in vitro* studies, this study was designed to assess the effectiveness of cinnamon in treatment of VVC.
Material and methods
Overall one hundred patients with culture results of VVC were included to the study. Patients were randomly assigned to intervention and control groups. Intervention group consumed clotrimazole vaginal cream and a 500mg cinnamon capsule for seven days, while control group received clotrimazole vaginal cream plus a placebo capsule. Patients were examined on the day of admission, fourth day of treatment and four to seven days after the treatment.
Results
The mean age of patients was 32.3±8.2 and 32.4±7.0 for patients in intervention and control group respectively. After four days of treatment the intervention group showed significant improvement in dysuria, dyspareunia and suprapubic pain in comparison to control group (*P*<0.001*)*.Post-treatment examination revealed that intervention group patients had fewer complains of vaginal discharge, dyspareunia and less positive culture results.
Conclusion
Cinnamon seems to help resolving symptoms of VVC in a shorter time and wider range than clotrimazole cream alone. A follow-up study for reinfection analyses is felt necessary and is ongoing.
Keywords
Candia albicans, cinnamon, clotrimazole, vulvovaginal candidiasis

457.00 PB249 Community randomised C.trachomatis screening trial

Jorma Paavonen (1), M Rana (2), S Korhonen (1), H Öhman (3), T Eriksson (2), D Apter (4), H-M Surcel (3), M Puolakkainen (1), M Lehtinen (2)
(1) University of Helsinki
(2) Universit of Tampere
(3) National Institute of Health and Welfare
(4) Family Federation of Finland

Introduction: Prevention of *Chlamydia trachomatis* (CT) disease burden is a high priority, and should be possible by first-void urine (FVU) screening and single dose treatment. However, in many countries both register-based (PCR) and population (seroconversions) incidence rates have been increasing during opportunistic screening. We launched a community randomized trial (CRT) to define the most effective screening strategy.
Material and methods: Since 2010, 15,000 females per year have been invited to participate in the screening in 33 communities, during phase IV HPV vaccination trial. FVU samples are tested by the Abbott™ system. Single dose Azithromycin™ treatment of CT positive individuals and their partners, as well as retesting has been organized. Screening effectiveness will be assessed by intention-to-treat. Comparison of prevalence rates by community and intervention arm will be performed.
Results and Discussion: Participation rates were almost identical covering the three birth cohorts (1992-1994). Overall, 9,078 18.5 year-old individuals participated. Vast majority attended the actual study sites, and used secure webpage to retrieve results. We found no major differences in the prevalence rates between the trial arms. Rates tended to increase from 2011 to 2013. Participation rates were approximately 25% by community. We have 80% power to demonstrate 85% prevalence reduction. In conclusion, population level evidence on the real life effectiveness of organised CT screening in women will be available. The added value of screening males is missing due to low attendance rate.

171.00 PB250 Population based study of Chlamydia trachomatis infection and adverse pregnancy outcome

Tiina Rantsi (1), Päivi Joki-Korpela (1), Erika Wikström (2), Hanna Öhman (3), Aini Bloigu (3), Matti Lehtinen (4), Mika Gissler (3), Aila Tiitinen (1), Jorma Paavonen (1), Heljä-Marja Surcel (3)
(1) Department of Obstetrics and Gynaecology, University of Helsinki, Helsinki, Finland
(2) Deparment of Dermatology, University of Oulu, Oulu, Finland
(3) National Institute for Health and Welfare, Oulu/Helsinki, Finland
(4) University of Tampere, School of Health Sciences, Tampere, Finland

Background. *C.trachomatis* infection is the most common bacterial sexually transmitted disease worldwide. The well-known sequelae of chlamydial infection include pelvic inflammatory disease, tubal factor infertility and adverse pregnancy outcome. Although *C.trachomatis* infection rates in Finland have been constantly increasing, Chlamydia-associated complication rates and *C.trachomatis* seroprevalence rates have been decreasing. Evidence linking *C.trachomatis* infection and adverse pregnancy outcome is incontinent and has largely based on case-control studies. We studied this link in a population-based health register setting study.
Methods The number of ectopic pregnancies and miscarriages was collected from the Hospital Discharge Registry during 1998-2005. Preterm deliveries during 1987-2005 were received from the Finnish Medical Birth register. Serum samples were retrieved from the Finnish Maternity Cohort and IgG-antibodies to *C. trachomatis* were analysed by a commercially available *C.trachomatis* MOMP peptide-specific enzyme immune assay (EIA) technique. SPSS 21.0 for Windows was used for data analysis.
Results Cases with ectopic pregnancy were more likely than the controls to have antichlamydial IgG-antibodies (21.0% versus 14.6%, p=0.001, OR 1.6, 95% CI 1.2-2.0). The seroprevalence was higher among the cases than among the controls throughout the study period. The risk for ectopic pregnancy was higher among women over 35 year-old. We found no association between serum antichlamydial antibodies and miscarriage or preterm birth.
Conclusions Our finding confirm the causal association between *C. trachomatis* infection and ectopic pregnancy, and are consistent declining prevalence of positive anti-chlamydial IgG-antibodies and declining rates of ectopic pregnancies. We did not found serological association with chlamydial infection and miscarriage or preterm birth.

381.00 PB254 A Case Report: Paraurethral Leiomyoma

Susy Shim (1), Camilla Skovvang Borg (1), Huda Galib Majeed (1), Ferid Madzak (1)
(1) Department of Gynecology and Obstetrics, Viborg Regionshospital, Denmark

Introduction
Paraurethral leiomyomas are rare benign tumors arising from the smooth muscle cells of the urethra. Only few cases of paraurethral leiomyomas have been described in the literature. They are often seen in the reproductive age and around 50 % of the cases are asymptomatic.
Case report
A fifty-nine years old woman presented with left lower abdominal pain through the last few months. The patient referred to our department on the suspicion of an ovarian cyst by a general surgeon. The pain had a colic nature and triggered by food ingestion and physical activities. Furthermore she had problems with incontinense and sometimes trouble with voiding.
On the gynecological examination, a firm but movable mass measuring 3x3 centimeters was felt under the lower edge of the pubic symphysis. Transvaginal ultrasound showed a tumor process, measuring 2.8×2.3 cm with close connection to the urethral wall and there was a suspicion of impression in the urethra itself.
An MRI scan showed a sharply defined and perfectly round process of 3×3 centimeters close to the top of the vagina with a slight compression of urethra.
A surgical excision of the tumor was made successfully.
Histopathological examination showed leiomyoma without any signs of malignancy.
Conclusion
Paraurethral leiomyoma should be considered as differential diagnosis in patients with both minor abdominal pain and urinary tract symptoms also in women at postmenopausal age. This case sheds light on the importance of a thorough gynecological examination.

122.00 PB255 Swedish validation of Impact of Miscarriage Scale (IMS) after miscarriage

Caroline Jansson (1), Helena Volgsten (1), Agneta Skoog Svanberg (1), Anneli Stavreus-Evers (1)
(1) Department of Women's and Children's Health, Uppsala University

Context:
Approximately 15-20% of women report that they have experienced miscarriage, expulsion of a fetus before 22 weeks of gestation. Most women show grief after a miscarriage, but the understanding on the experience miscarriage is scarce. The Impact of Miscarriage Scale (IMS) was developed to study the experience after miscarriage.
Objectives:
The objectives were to validate the IMS for Swedish conditions and to measure women's and men's experience after miscarriage.
Design, Setting, and Participants:
The study was performed at the gynecological ward at Uppsala University Hospital, Sweden. A total of 61 women were included in the study. Additionally, 39 Swedish couples were included for comparison between women and men. All women and men filled in a questionnaire on general health and IMS. The IMS measures the experience of a lost child, personal significance, devastation event and isolation after miscarriage.
Results:
Swedish women scored 30 % lower in all four factors, but with the same pattern, than women from USA, low score showing better personal experience. The data showed that med had significant lower score for personal significance, devastating event and isolation than women, while the feeling of having lost a child was the same for men and women.
Conclusions:
The difference between Sweden and USA might be due to factors related to cultural differences. It can also be noticed that 15 years has passed from the American study to the recent Swedish study. The data show that that the well-being of the men is also reduced after their partners' miscarriage.

443.00 PB256 Benzodiazepines are not drug of choice in Post Traumatic Stress Disorder (PTSD) after rape.

Anna Tiihonen Möller (1), Torbjörn Bäckström (2), Hans Peter Söndergaard (1), Lotti Helström (1)
(1) Dept of Clinical Science and Education, Karolinska Institutet, Stockholm, Sweden
(2) Dept of Clinical Science, Obstetrics and Gynecology, Umeå University, Umeå, Swed

Background: Post Traumatic Stress Disorder (PTSD) is a disabling consequence of rape that one third of the victims will develop. Benzodiazepines (BZ) have successfully been used in anxiety disorders and it seems logical to prescribe these drugs to ease symptoms in PTSD. However, several studies have shown that BZ´s are less effective in patients with PTSD. BZ act by binding to the GABA-A receptor. The GABA-A receptor is the most important inhibitory receptor in the nervous system and activation with an agonist cause's sedation and amnesia, while activation with an antagonist cause's arousal, restlessness, and insomnia. As the latter symptoms all are described in the PTSD patients it would be of interest to investigate the GABA-A receptor in PTSD patients.
Aim: To investigate the GABA-A receptor sensitivity in PTSD patients.
Method: 12 women with PTSD 6 months after rape were compared to 16 female healthy controls regarding the GABA-A receptor function measured as SEV (Saccadic Eye Velocity) and subjective ratings of sedation measures with Visual Analogue Scale (VAS). Receptor function was measures after injection of allopregnanolone, diazepam and flumazenil.
Results: Women with PTSD were less sensitive to diazepam and allopregnanolone causing less sedation and less response on SEV compared to controls. The antagonist Flumazenil had a paradoxical agonistic effect causing increased sedation compared to controls.
Conclusion: Women with PTSD have a changed sensitivity to GABA-A-receptor active substances. As a consequence of this benzodiazepines and other GABA-A receptor active compounds such as sleeping pills will be less useful for this group of patients.

138.00 PB257 Activation of Vestibule Associated Lymphoid Tissue in Localized Provoked Vulvodynia

Päivi Tommola (1), Ralf Butzow (2), Leila Unkila-Kallio (1), Jorma Paavonen (1), Seppo Meri (3,4)
(1) Department of Obstetrics and Gynecology, Helsinki University Central Hospital, Finland
(2) Department of Pathology, University of Helsinki, Helsinki, Finland
(3) Research Programs Unit, Program of Immunobiology, University of Helsinki, Finland
(4) Department of Bacteriology and Immunology, Haartman Institute, University of Helsinki, Finland

Objective: Localized provoked vulvodynia (LPV) is a disease, where inflammatory etiology has been suspected. Here we wanted to find out if the cell-mediated immune system would become activated in the vestibular mucosa in LPV.
Study design: Vestibular mucosal specimens were obtained from 27 patients with severe LPV and 15 controls. Detailed clinical history of the patients was obtained. For immunohistochemistry antibodies against CD3 (T cells), CD20 (B cells), CD117 (mast cells) , CD163 (dendritic cells), CD68 (macrophages), and IgA (plasma cells) were employed. Mann-Whitney U-test and chi²-test were used for statistical analyses.
Results: In both groups dendritic cells were found to extend their dendrites into the luminal space through an intact epithelium. No significant differences in the densities of dendritic cells nor of macrophages or mast cells were found between the groups. More B-lymphocytes and mature plasma cells were found in patients than in controls ($p<0.001$, $p<0.001$). In the most affected tissues B- and T-cells had become arranged into germinal centers representing local immune activation. Germinal centers were found only in patients but not in controls.
Conclusion: We demonstrate here the existence of local organized vestibule-associated lymphoid tissue (VALT) analogous to mucosa-associated lymphoid tissue (MALT). Possibly, VALT emerges as a response to local infection and/or inflammation in LPV.

6.00 PB258 Hyperemesis Gravidarum; Nasogastric tube feeding is feasible. A 10-year Cohort.

Jone Trovik (1), G Stokke (1), B Gjelsvik (2), K Flaatten (3), E Birkeland (2), H Flaatten (4)
(1) Dpt.Obstetrics and Gynaecology, Haukeland University Hospital, Bergen, Norway
(2) Medical Faculty of the University of Bergen, Norway
(3) Medical Faculty of the University of Tromsø, Norway
(4) Institute of Clinical Medicine 1, University of Bergen, Norway

Background. Hyperemesis gravidarum affects 1% of pregnancies with increased risk of preterm birth and growth retardation. Nutritional treatment is traditionally administered intravenously by peripheral or central line (CVC) but nasogastric jejunal tube feeding is an alternative. We wanted to explore the effect of enteral tube feeding in hyperemesis gravidarum.
Method. Retrospective journal review of all hyperemesis gravidarum patients treated at Haukeland University Hospital during 2002-2011. Data were collected regarding fluid/nutritional treatments and pregnancy outcomes.
Results. Of 558 Hyperemesis gravidarum patients, 273 received only water/electrolytes intravenously, 177 nutritional supplements by peripheral line, 107 enteral tube feeding and 10 total parenteral nutrition by CVC. Patients receiving enteral nutrition had significant shorter gestational length (median 8.0 weeks compared to 9.0 for the fluid/peripheral nutrition group) and greater weight loss at admission (5.0 kg compared to 4.0 kg, $p \leq 0.001$) but pre-pregnant BMI were similar. Enteral nutrition was administered median 5 days (range 0-141) during 13 days in hospital. 46/107 women needed repeated tube placements (2-7) and 58/107 continued nasogastric nutrition after discharge. Patients with < 7 kg weight gain during pregnancy had increased risk of growth retardation (SGA) or birth weight < 2500 g ($p \leq 0.001$). Tube feeded women achieved similar degree of weight gain and did not have a higher incidence of preterm birth or SGA than the other treatment groups.
Conclusion. Enteral nutrition by jejunal tube for hyperemesis gravidarum patients is feasible, may be continued after hospital discharge and promotes adequate weight gain without increased pregnancy complications.

382.00 PB259 Enhanced Recovery After Surgery (ERAS) protocol in abdominal hysterectomies for benign versus malignant disease: a non-randomized controlled study

Lena Wijk (1,2), Olle Ljungqvist (3,2), Karin Franzen (1,2), Kerstin Nilsson (1,4)
(1) Department of Obstetrics and Gynecology, Örebro University Hospital, Sweden
(2) School of Health and Medical Sciences, Örebro University, Sweden
(3) Department of Surgery Örebro University Hospital, Sweden
(4) School of Medicine, Örebro University, Sweden

Background: The Enhanced Recovery After Surgery (ERAS) protocol combines unimodal evidence-based interventions aiming to reduce length of stay and enhance recovery after surgery. It has been studied widely for colorectal surgery primary in cancer patients, with consistent findings of faster and safer recovery after surgery. A few studies have been done with similar fast track protocols in gynecological surgery. In this study we introduced an ERAS protocol in gynecological surgery comparing hysterectomies performed for benign versus malignant indications.
Methods: From January to December 2012, 55 consecutive patients undergoing hysterectomy and salpingo-oophorectomy with or without omentectomy were included comparing patients operated for benign (n=34) or malignant disease (n= 21). Clinical data were prospectively collected. Primary outcomes were length of stay (LOS) and number of patients reaching target length of stay (tLOS) set to 2 days.
Results: There were no significant difference regarding LOS between patients operated for malignant versus benign disease with median (range) for malignant indications 2 (1-3) versus benign 2 (1-5) p=0,602 (Mann Whitney U-test), nor in the number of patients discharged at tLOS % 67 versus 76% p=0,428 (OR 0.62 95% CI 0.2-2.0). No differences were found in complications (6% versus 0% in primary stay, 15% versus 14% within 30 days after discharge), reoperations (0% versus 0%) and readmission (0% versus 5%).
Conclusion: We conclude that an ERAS protocol is feasible for hysterectomies operated for malignant disease.

320.00 PB260 NovaSure radiofrequency-controlled system for endometrial ablation as a treatment for heavy menstrual bleeding

Pavol Zubor (1), Frank Walter (1), Hashmat Ibrahimkhail (1), Carin Wigg (1), Norbert Szunyogh (1), Grete Teigland (1), Henrik Erdal (1)
(1) Dpt. of Obstetrics and Gynecology, Molde hospital, Helse Møre og Romsdal, Norway

Background: The heavy menstrual bleeding (HMB), including both menorrhagia and metrorhagia is an often gynecologic diagnosis in women where surgical treatment often follows failed medical therapy. However, prior the definitive treatment which is a hysterectomy, a variety of endometrial ablation technologies is available, including radiofrequency ablation system.
Objective: To review safety, perioperative complications and short-term outcome in women undergoing endometrial ablation for menorrhagia using the NovaSure bipolar radiofrequency impedance-controlled system.
Methods: Forty-seven premenopausal women with menorrhagia secondary to abnormal uterine bleeding, who have completed childbearing with non-distorted uterine cavities were included in the study. All patients received the treatment under intravenous sedation and were treated with NovaSure endometrial ablation without the use of endometrial pretreatment.
Results: The mean age was 43.4 (27-53 years) and mean parity 2.7 (0-6). The median treatment time was 92 seconds (88-94). There was 1 (2.1%) laparoscopies performed because of uterine perforation and 3 (6.4%) patients required antibiotic therapy for postoperative endomyometritis. Of the women observed for 1-3 years, 85.1% felt the procedure was successful. The following outcomes related to the menstrual bleeding were noted: amenorrhea 42.5%, light bleeding 38.3%, normal bleeding 10.7%, and heavy bleeding 8.5%. The 3 (6.4%) patients required repeat surgical treatment (hysterectomy).
Conclusion: Endometrial ablation using NovaSure system is a simple, effective and safe technique for patients with abnormal menstrual bleeding.

43.00 PB261 One hundred years of congenital adrenal hyperplasia in Sweden: a retrospective, population-based cohort study

Sebastian Gidlöf (1, 3), Henrik Falhammar (1,4), Astrid Thilén (7), Ulrika von Döbeln (5), Martin Ritzén (2), Anna Wedell (1,5), Anna Nordenström (1,5,6)
(1) Dept of Molecular Medicine and Surgery, Karolinska Institutet
(2) Dept of Women's and Children's Health, Karolinska Institutet
(3) Dept of Obstetrics and Gynaecology, Karolinska University Hospital
(4) Dept of Endocrinology, Metabolism and Diabetes, Karolinska University Hospital
(5)Centre for Inherited Metabolic Diseases, Karolinska University Hospital
(6) Paediatric Endocrinology, Karolinska University Hospital
(7) Department of Paediatrics, Jönköping Hospital

Background
Congenital adrenal hyperplasia (CAH) due to 21-hydroxylase deficiency results in cortisol and aldosterone deficiency and may be lethal. We aimed to assess the effect of historical medical improvements over time and to assess the effects of neonatal screening in Sweden.
Methods
We collected data for all known patients with CAH in Sweden between Jan 1, 2010, and Dec 31, 2011. The distribution of clinical severity, genotype, sex, and the effect of nationwide neonatal screening were assessed.
Findings
We identified 606 patients with the disorder, born between 1915 and 2011. The *CYP21A2* genotype (conferring deficiency of 21-hydroxylase) was known in 490 patients (81%). The female-to-male ratio was 1·25 in the whole cohort, but close to 1 in patients detected by the screening. We noted a sharp increase in the number of patients diagnosed in the 1960s and 1970s, and after the introduction of neonatal screening in 1986 the proportion of patients with the salt-wasting form of CAH increased in both sexes, from 114 (47%) of 242 individuals between 1950 and 1985 to 165 (57%) of 292 individuals between 1986 and 2011 (p=0·038). The non-classic form of the disorder was diagnosed more often in women than in men, which accounts for the female preponderance in our cohort.
Interpretation
Our findings suggest that, contrary to current belief, boys and girls with salt-wasting CAH were equally missed clinically. Neonatal screening improved detection of the salt-wasting form in girls as well as boys, saving lives in both sexes.

248.00 PB263 Preeclampsia and androgen hormonal status in early adolescence

Ingvild Vatten Alsnes (1), Lars Vatten (2,3), Imre Janszky (2), Inger Økland (1), Michele Forman (4)
(1) Department of Obstetrics and Gynecology, Stavanger University Hospital, Norway
(2) Department of Public Health, Faculty of Medicine, NTNU, Norway
(3) Department of research, Stavanger University Hospital, 4068 Stavanger, Norway
(4) Department of Nutritional Sciences, University of Texas at Austin, Austin, Texas, USA

Objectives: Offspring born of mothers with preeclampsia in pregnancy may have an androgen hormonal profile in early adolescence. The purpose of the study was to study hormonal concentrations in boys and girls at 11-12 years of age, and compare children of mothers who had mild, moderate, severe or no preeclampsia in pregnancy. We also studied hormonal differences among the mothers.
Study design: Mothers and offspring of a nested case-control study of preeclampsia at birth were followed up at 11 (female offspring) and 12 (male offspring) years after delivery. In total 611 mother-offspring dyads were included; 228 diagnosed with preeclampsia, and 383 without preeclampsia. Hormonal status was measured by the blood analytes androstendione, dehydroepiandrostendione (DHEAS), insulin-like growth factor 1 (IGF-1), total testosterone and SHBG.
Results: Among boys in the severe preeclampsia group, DHEAS was lower than among boys in all other groups (all p<0.001), and testosterone in the preeclampsia subgroups was higher than among boys in the non-preeclampsia group. Among girls in the severe preeclampsia group, DHEAS was lower than in all other groups, and testosterone among girls in the severe preeclampsia group was higher than in all other groups.
Conclusion: DHEAS and testosterone are remarkably different between boys and girls in early adolescence. This heterogeneity and specifically the androgen profile among offspring whose mothers had severe preeclampsia in pregnancy, suggests an association between preeclampsia and hormonal development around the time young adolescents enter puberty.

250.00 PB264 Preeclampsia and later cardiovascular risk: a follow-up study

Ingvild Vatten Alsnes (1), Imre Janszky (2), Michele Forman (3), Lars Vatten (2,4), Inger Økland (1)
(1) Department of Obstetrics and Gynecology, Stavanger University Hospital, Norway
(2) Department of Public Health, Faculty of Medicine, NTNU, Norway
(3) Department of Nutritional Sciences, University of Texas at Austin, Austin, Texas, USA
(4) Department of Research, Stavanger University Hospital, Norway

Context: Women with a history of preeclampsia are at increased lifetime risk for cardiovascular disease. Their offspring may carry similar risks.
Objective: The purpose was to study cardiovascular and metabolic risk factors 11 years after the delivery among women who were diagnosed with mild, moderate or severe preeclampsia, and their offspring, compared to women without preeclampsia and their offspring.
Design and setting: We studied 611 mother-offspring dyads, 228 cases with preeclampsia and 383 without preeclampsia, through a nested case-control study at birth with follow-up 11 years after delivery, in a University Hospital in Norway.
Main outcome measure: Cardiovascular and metabolic risk profiles were assessed by serum lipids (total cholesterol, HDL cholesterol, non-HDL cholesterol), insulin related factors (glucose, insulin and HOMA-IR) and blood pressure in mothers and children.
Results: Among mothers with mild or moderate preeclampsia, levels of glucose, insulin and HOMA-IR were higher than in the non-preeclampsia group, and also higher compared to mothers with severe preeclampsia (all $p<0.05$). HDL cholesterol was lower in mothers with mild or moderate preeclampsia (all $p<0.05$), but other lipids did not substantially differ between the groups. BMI and blood pressure (systolic and diastolic) were also higher in the mild and moderate preeclampsia group compared to mothers without preeclampsia (all $p<0.05$). Among the offspring, we found no clear differences in any blood analytes between the groups.
Conclusion: Women with a previous diagnosis of mild or moderate, but not severe preeclampsia, may have an adverse metabolic and cardiovascular risk profile 11 years after the delivery.

251.00 PB265 Long-term Efficacy and Safety of Repeat OnabotulinumtoxinA in the Treatment of Idiopathic Overactive Bladder: Median of 2.4 Years' Follow up

Victor Nitti (1), Christopher Chapple (2), David Sussman (3), Sidney Radomski (4), Peter Sand (5), Steven Guard (6), Jihao Zhou (7), Karl-Dietrich Sievert(8),
(1) New York University, New York, NY, USA;
(2) Royal Hallamshire Hospital, Sheffield, UK;
(3) NJ School of Osteopathic Medicine, Newark, NJ, USA;
(4) University of Toronto, Toronto, Canada;
(5) University of Chicago, Chicago, IL, USA;
(6) Allergan Ltd., Marlow, UK;
(7) Allergan, Inc., Bridgewater, NJ, USA;
(8) University of Tuebingen, Tuebingen, Germany;

Introduction: Long-term efficacy and safety of repeated onabotulinumtoxinA treatments were assessed for patients with idiopathic overactive bladder (iOAB) symptoms including urinary incontinence (UI) who had been inadequately managed by ≥1 anticholinergic (ACH). The results are from a third interim analysis.
Patients and Methods: Patients who completed either of two phase 3 studies could enter a 3-year extension study in which they received multiple onabotulinumtoxinA (100U) treatments. Data were analyzed by treatment cycle. Change from baseline (BL) in OAB symptoms, proportions of patients with a positive response on the Treatment Benefit Scale (TBS; co-primary endpoint), health-related quality of life (HRQOL), duration of effect, adverse events (AEs), and clean intermittent catheterization (CIC) initiation were assessed.
Results: 829 patients entered this extension study; median follow-up was 126 weeks (2.4 years). Discontinuation rates due to AEs/lack of efficacy were low (4.5%/4.9%). OnabotulinumtoxinA reduced mean UI episodes/day (co-primary endpoint; BL=5.55) at week 12 by -3.26, -3.70, -3.87, -3.20, and -3.22 (cycles 1-5, respectively). Improvements in other OAB symptoms and HRQOL (exceeding minimally important differences; ≥2.5X) were consistently observed with repeat onabotulinumtoxinA. Positive TBS responses were reported (74.0, 80.9, 80.4, 79.4, 86.1%). Median duration was 24.0, 31.6, 27.9, 24.3, and 23.9 weeks. Most common AE was urinary tract infection, with no changes in overall AE profile. CIC rates were 4.6, 4.0, 4.3, 4.6, and 2.9%.
Conclusions: Patients with iOAB and UI inadequately managed by ≥1 ACH showed sustained improvements in OAB symptoms, perception of their condition, and HRQOL after repeated onabotulinumtoxinA treatment, with no new safety concerns.

66.00 PB266 Umbilical cord clamping: Finding a compromise that allows maximal retrieval of cord blood for clinical banking and optimal infant health.

Ulrica Askelöf (1), Ola Andersson (2), Magnus Domellöf (3), Anders Fasth (4), Boubou Hallberg (1), Lena Hellström-Westas (5), Karin Pettersson (1), Magnus Westgren (1), Cecilia Götherström 1
(1) CLINTEC, Division of Obstetrics and Gynecology, Karolinska Institutet, Stockholm
(2) Department of Women's and Children's Health, Hospital of Halland, Halmstad
(3) Department of Clinical Sciences, Pediatrics, Umeå University, Umeå
(4) Department of Clinical Sciences, University of Gothenburg, Gothenburg
(5) Department of Women's and Children's Health,Uppsala University, Uppsala, Sweden

Background and Objectives: Umbilical cord blood (UCB) is a valuable stem cell source in hematopoietic stem cell transplantation. Increasing demand for UCB has resulted in public banks with donated UCB. Immediate umbilical cord (UC) clamping is normally practiced in UCB collection. Recently, studies have shown that children may benefit from prolonged placental transfusion at birth, favoring late clamping. However, this obstructs collection of UCB for clinical banking. We attempt to develop a method that enables satisfactory collection of UCB without risks for the donor, the newborn child. The aim of this study is to investigate the consequences of different clamping times with regard to the children's blood and iron status.
Method: Iron and blood status of 250 children whose UC were clamped at one minute will be analysed and compared to two control groups: 1) Children whose UC was clamped early <10 seconds and 2) Children whose UC was clamped late, >3 minutes. Follow up is at the age of 3 days and at 4 months.
Results: The study is in progress.
Implications for Practice: Donating UCB is a voluntary option. Parents must be able to donate their child's UCB without fear for the future health of their child. The present study will reveal if the children are affected by intermediate UC clamping. Without the result of this study, there is a risk that willingness to donate UCB will decrease and that it will be challenging for altruistic UCB banks to continue its important and life-saving work.

93.00 PB267 The influence of labour and perinatal stress on the cell content of umbilical cord blood

Ulrica Askelöf (1), Åsa Ekblad (1), Hong Qian (2), Cecilia Götherström (1)
(1) Karolinska Institutet, Division of Obstetrics and Gynecology, Stockholm, Sweden
(2) Karolinska Institutet, Center for Hematology and Regenerative Medicine, Stockhol

Background: Collection of umbilical cord blood (UCB) for haematopoietic stem cell transplantation is carried out in all types of deliveries. Research studies have suggested that the cell composition in UCB may be influenced by perinatal factors. In this study we perform in depth analysis on what influence mode of delivery and other obstetric factors have on the UCB cell composition.

Methods: 415 units of UCB were analysed and divided into 4 groups: elective caesarean sections (CS) (n=116), acute CS (n=60), instrumental deliveries (n=74) and normal vaginal deliveries (n=165). The concentration of total nucleated cells, CD34+ and CD3+ cells were evaluated and correlated to obstetric and perinatal data.

Preliminary results: The total nucleated cell count was 60% and 27% higher after instrumental delivery compared to vaginal delivery and elective SC respectively ($p<0.05$).
The concentration of CD3+ cells was 62% and 58% higher after acute CS compared to elective CS and instrumental delivery and 45% higher than after vaginal delivery ($p<0.05$).
The log concentration of CD34+ cells was higher after instrumental delivery (4.6±0.3) compared to elective CS (4.5±0.3), vaginal delivery (4.5±0.3) and acute CS (4.4±0.3) ($p<0.05$).
Obstetric and perinatal factors influencing the composition of UCB were hours in active labour, Apgar scores, meconium staining of the amniotic fluid and parity.
Currently, we are performing in-depth analysis on how cells in UCB are induced by labour and perinatal stress using advanced multiparameter flow cytometry.

Conclusions: Labour and perinatal stress increase the cell content in UCB.

244.00 PB268 Nitric oxide production in trophoplabsts and macrophages

Purusotam Basnet (1), Ganesh Acharya (1)
(1) Women's Health and Perinatology Research Group, Department of Clinical Medicine,

Background: Success of pregnancy is limited mainly due to the lack of adequate communication between endometrium and trophoblast. Several key molecules such as cytokines, adhesion molecules, extracellular matrix proteins, integrins, lectins, proteoglycans etc. play an important role in the implantation process. Nitric oxide (NO) is a well known vasodilator and immune modulator and is increased in pregnancy, but its role in implantation is unclear. Some immune cells, such as macrophages in the endometrium, can produce a large quantity of NO by activating iNOS which leads to inflammation. We evaluated the NO producing capacity of trophoblasts and macrophases *in vitro* under a variety of inflammatory conditions.
Method: Macrophages (RAW264.7) and Trophoblasts (HTR-8/SVneo) were induced by lipopolysaccharides (LPS), tumor necrosis factor-*α* (TNF-*α*) and *γ*-interferon (INF-*γ*) at various concentrations (0.1-20 µg/ml) to initiate inflammatory NO production. Produced NO was quantified by Griess method with spectrophotometric analysis.
Results: Macrophages produced a significantly high amount of NO from 4 hours after induction with LPS, TNF-*α* or INF-*γ* reaching sustained peak values (9 folds of the control) from 8 to 24 hours. Trophoblasts produced negligibly small quantity of NO despite induction with high concentrations of pro-inflammatory substances.
Conclusion: The *in vitro* ability of trophoblasts to respond to inflammation by producing NO is limited compared to that of the macrophages. Methods directed towards targeted production of certain amount of NO during induced inflammation using a particular concentration of pro-inflammatory substance might be useful for understanding role of NO in the process of embryo implantation.

273.00 PB269 Pattern of medication use before and in early pregnancy: prevalence and factors associated with continued use.

Anne Ersbøll (1, 2), Mette Sejer Sørensen (1), Marianne Johansen (2), Morten Hedegaard (2), Hanne Hegaard (1)
(1) Research Unit Children and Women's Health, Rigshospitalet, Copenhagen, Denmark
(2) Deparment of Obstetrics, Rigshospitalet, Copenhagen, Denmark

Background:
The overall use of drugs inThe use of medications in pregnancy is generally increasing, and associated teratogenic or adverse risks for of most drugs are not fully documentedis undetermined. Therefore, it is important to monitor medication use amongst conceiving and pregnant women. Previous studies are retrospective register based prescription studies or based on postpartum interviews and/or questionaairesquestionnaires with the risk of recall bias.
Aim:
To describe the use of over-the-counter (OTC) and prescription medications in the preconception period and during the first trimester and identify factors associated with continued use in early pregnancy.
Methods:
Cross-sectional study based on data from the on-going, prospective Copenhagen Pregnancy Cohort.
Results:
In early pregnancy 4,967 women were asked to fill in a questionnaire with a response rate of 81.2XX% (n=4031) (n=4,, and 4,031). answered. A total of A total of 2,504 reported having used use of at least one prescription and/or OTC medications three months before pregnancy and/or in the first trimester. Of 3,949 responders replied to questions about medication use, andwomen replying did 2504 women (63.4%) reported to haveing received at least one OTC or prescription medication prior tobefore pregnancy. A total , and 831 women (21.0%) had received medication in the first trimester.
In unadjusted logistic regression analysis obesity, chronic diseases, other diseases and multiparity were associated with a higher risk of continued medication use. In adjusted logistic regression analysis only multiparity (aOR=1.72, 95%CI 1.31-2.25, p<0.001), chronic diseases (aOR=4.07, 95% CI 2.94-5.64 p<0.001) and other diseases (e.g. XXX) (aOR=2.28, 95%CI 1.55-3.35, p<0.001) were associated with continued use.
Interpretation:
Women in this cohort generally reduced or seized with decrease or seized with their use of medications upon conceptionwhen they become pregnant. Multiparity, chronic and other diseases are independently associated with continued use of drugs in early pregnancy.

277.00 PB270 Hazardous drugs in the preconception period and during early pregnancy.

Anne Ersbøll (1, 2), Mette Sejer Sørensen (1), Marianne Johansen (2), Morten Hedegaard (2), Hanne Hegaard (1)
(1) Research Unit Children and Women's Health, Rigshospitalet, Copenhagen, Denmark
(2) Deparment of Obstetrics, Rigshospitalet, Copenhagen, Denmark

Background:
For many drugs data are still inadequate to confirm their safety during pregnancy. However, a number of drugs are known to be harmful to the foetus and should not be used in the preconception period or during pregnancy.

Aim:
To describe the use of hazardous drugs in the preconception period and during the first trimester in a population based study.

Methods:
Cross-sectional study based on data from the prospective Copenhagen Pregnancy Cohort.

Results:
In early pregnancy 4,032 women out of 4,967 asked (81.2%) filled in a questionnaire. A total of 3,949 women responded answered to questions onabout drug use, and 2,504 (63.4%) reported having used one or more (a total of 4,087) a total of 4,087 over-the-counter and/or prescription drugs medications used three months prior to before pregnancy. The drugs were categorized according to a Danish risk classification system. and 2,973 (71.5%) drugs belonged towere in risk group I (drugs tolerated in pregnancy). Fourty oneFourty-one 41 (1.0%) of the used drugs were in risk group IV drugs (drugs that mustshould not be used due to evidence of teratogenicity or adverse fetal effects). Of the group IV drugs 18 (43.9%) were used daily by XX number of women (X%).
In the first trimester did 821 women received a total of 1093 drugss of which 843 (77.1%) werewere in risk group I. Two drugs medications (0.2%) belonged to were in risk group IV.

Interpretation:
During the preconception period 1% of women (n=41XX) in this cohort used drugs known or strongly suspected to cause adverse fetal effects. 1% of women in this cohort received a drug known or strongly suspected to cause adverse fetal effects. The use decreased in the first trimesteruse decreased in the first trimester, but harmful effects may have taken place in early pregnancy.