PM.01 PREDICTION OF PERIPARTUM HYSTERECTOMY AND END ORGAN FAILURE IN SEVERE OBSTETRIC HAEMORRHAGE

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Introduction: Massive obstetric haemorrhage (MOH) is a major contributor to maternal mortality and morbidity even in developed countries[1] with evidence of substandard care in 60% to 80% of cases.[2]

Objectives:

a) Determine the incidence and aetiology of MOH in our population and the success rates of medical and surgical interventions

b) Identify risk factors for peripartum hysterectomy and end organ failure (EOF).

Methods: This was a four-year prospective study in three Dublin hospitals. Massive obstetric haemorrhage (MOH) was defined by a requirement of >4 units of RCC. Odds Ratios (OR) was calculated for risk factors for hysterectomy and EOF.

Results: 117 cases of MOH in 93 291 deliveries were identified. 40% of women were primiparous and 44% had a previous caesarean section (CS). 53% of patients were delivered by CS. The success rates of selected treatments were: medical therapy alone (30%), Recombinant Factor VII (75%), hydrostatic balloon (75%) and the B-Lynch suture (40%). 28 hysterectomies were performed, 19 women developed EOF. Regression analysis showed that parity (OR, 1.38), previous CS (OR, 3.28), placenta praevia (OR, 4.9), placenta accreta (OR, 5.9), uterine rupture (OR, 3.1) and the volume of RCC transfused (OR, 1.28) were risk factors for hysterectomy. Placenta accreta (OR, 3.4), uterine rupture (OR, 5.3) and RCC transfused (OR, 1.31) were risk factors for EOF. No physiological parameter was found to be associated with either end point.

Conclusions: This study adds to the data regarding the causes of MOH and the efficacy of newer treatments. Although placenta praevia is associated with hysterectomy, anticipation and preparation for the necessary interventions appears to avoid EOF.

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PM.02 TROPHOBLAST APOPTOSIS IS P53-DEPENDENT AND SUSCEPTIBLE TO MODULATION

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Apoptosis is a feature of both normal and pathological placentas, with excessive apoptosis associated with pre-eclampsia (PE) and intra-uterine growth restriction (IUGR). p53, a key regulator of apoptosis is increased in both PE and IUGR. We have developed a model of exaggerated p53 activity in trophoblast by addition of the p53 activator, nutlin-3. In addition, a negative modulator of p53, pifithrin-α, was used to abrogate the excessive p53 activity induced by nutlin-3.

BeWo cells and primary trophoblast cells (PTB) were cultured for 24 h and 66 h, respectively before exposure to increasing concentrations of nutlin-3 (0–50 μM) for a further 24 h. Apoptosis, viability, necrosis and protein expression were assessed. These experiments were repeated with cells exposed to 30 μM nutlin in combination with increasing concentrations of pifithrin-α (0–20 μM).

Exposure of BeWo cells and PTB to increasing concentrations of nutlin-3 increased apoptosis and caspase activity and decreased viability. Necrosis was unaffected by treatment with either agent. Treatment with nutlin-3 and pifithrin-α in combination reduced apoptosis and caspase activity. p53, Mdm2 and PUMA protein expression were increased after treatment with nutlin-3, which was partially abrogated by pifithrin-α.

These investigations demonstrated an active role for p53 in the modulation of placental apoptosis. p53 activity and consequent apoptosis are increased by the administration of nutlin-3 and more importantly, this effect can also be reduced to some extent by the administration of pifithrin-α. These findings suggest that p53 may be a potential therapeutic target to attenuate the exaggerated apoptosis witnessed in PE and IUGR.

PM.03 UTERINE NATURAL KILLER CELLS IN PATIENTS WITH RECURRENT MISCARRIAGE SHOW EVIDENCE OF PROLIFERATION AND DIFFERENTIATION BUT NOT TRAFFICKING

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Introduction: There is considerable controversy concerning the origin of uterine natural killer (uNK) cells. There are two competing hypotheses. uNK cells could be the result of peripheral NK cells trafficking into the uterus or the result of proliferation of uNK cells in the endometrium.

Methods: Serial sequential sections of endometrial tissue from 20 recurrent miscarriage patients of extreme phenotype at LH+7 days were stained using immunohistochemistry with antibodies to CD56, KI67, NKp30, L-Selectin and CD16, uNK cell markers of proliferation, differentiation and trafficking. Endometrium was examined using a single-blinded method and samples with high and low density of CD56+ cells were compared in areas of epithelium, oedema and vessels.

Results: Preliminary semi-quantitative analysis showed more positively stained cells for all markers in samples with high-uNK cell density, except for CD16. The majority of CD56+ cells appeared to be CD16-. The CD56+ was seen more clustered around vessels.

CD56 and NKp30 are frequently found nearer the epithelium in samples with high-uNK cell density. This sub-epithelial location is significant as it is where initial feto-maternal interaction occurs. The localisation of KI67 suggests that uNK cells surrounding vessels are the result of proliferation. The paucity of L-Selectin and CD16+ expression in either group suggests that uNK cells are not trafficking from peripheral blood.

Conclusion: Preliminary data from recurrent miscarriage patients provide evidence of proliferation and differentiation of uNK cells but not trafficking from the peripheral circulation.

PM.04 DOES A NOVEL AUTOMATED AUSCULTATORY DEVICE MEASURE BLOOD PRESSURE ACCURATELY IN PREGNANCY AND PRE-ECLAMPSIA? TENSOVAL DUO CONTROL

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Objective: The Tensoval duo control is the first fully automated auscultatory device to maintain an A/A grading throughout the low, medium and high pressure categories according to the British Hypertension Society (BHS) protocol in an adult population. The device primarily uses auscultation of Korotkoff sounds (microphone located in device, not cuff) to determine blood pressure (BP), but an oscillometric back-up mode provides a measurement in the case of faint Korotkoff sounds. The vast majority of oscillometric devices are inaccurate in pre-eclampsia. We assessed this device in pregnancy and pre-eclampsia according to the BHS protocol.

Methods: Forty five women, including 15 with pre-eclampsia, were recruited from a large teaching hospital. Nine sequential same-arm blood pressure (BP) readings were taken by trained observers alternating between mercury sphygmomanometer and the device. The data were analysed according to the BHS protocol guidelines.

Results: The device achieved an A/B grade in pregnancy with a mean difference ±SD of −3.3±6.2 mm Hg for systolic (SBP) and

0.9±7.1 mm Hg for diastolic (DBP) blood pressure. In pre-eclampsia, the device achieved a D/B grade with mean difference ±SD of −7.5±9.0 mm Hg (SBP) and −0.1±7.4 mm Hg (DBP). In the categories <5/10/15 mm Hg, the device achieved 68/86/97% and 62/83/98% in pregnancy for SBP and DBP respectively compared to 40/73/82% and 67/80/98% in pre-eclampsia.
Conclusion: The Tensoval duo control can be recommended for clinical use in pregnancy, but not in pre-eclampsia. Device accuracy in an adult population should not be extrapolated to pregnancy and pre-eclampsia. Novel automated auscultatory technology is not more accurate than oscillometry alone in pre-eclampsia.

PM.05 HIGH NUMBERS OF UTERINE NATURAL KILLER CELLS LEAD TO A HOSTILE ENDOMETRIAL ENVIRONMENT FOR IMPLANTATION IN PATIENTS WITH RECURRENT IMPLANTATION FAILURE

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Recurrent implantation failure (RIF) is thought to be the worst end of a spectrum of disorders of placentation. Natural Killer (NK) cells have been associated with RIF; however, the importance of endometrial compared to peripheral blood NK cells is debated.
Hypothesis: Uterine natural killer (uNK) cells originate in the endometrium and do not occur due to trafficking of peripheral blood NK cells.
Methods: 20 patients with recurrent implantation failure (RIF: >5 failed embryo transfers) had endometrial biopsies taken at LH+ 7–9. Serial paraffin sections were stained using immunohistochemistry with the following: CD56 (all NK), CD16 and L-Selectin (peripheral NK), NKp30 (differentiated NK) and Ki67 (proliferation). The same areas in samples were analysed using a semi-quantative, single-blind approach observing areas surrounding vessels, oedema and epithelium. Cases with high-uNK or low-uNK cell density were compared.
Results: Minimal numbers of CD16+ and L-Selectin+ cells were observed in all cases. In the high-uNK cases, a substantial increase in NKp30+ and Ki67+ cells were observed in areas surrounding vessels.
Conclusions: Low expression of markers for peripheral NK cells at LH+ 7–9 challenges the theory that uNK cells migrate from the blood. On the other hand, in patients with RIF and high-uNK cell density, differentiated and activated uNK cells surround vessels. The differentiation of resident uNK cells could be involved in angiogenesis and the induction of a hostile endometrial environment.

PM.06 PREGNANCY AND OBESITY: AN EPIDEMIC OF OBESE PREGNANT WOMEN IN A SOUTHWEST LONDON HOSPITAL

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Background: The UK incidence of pregnant obese women ranges from 18.5% to 38.35% and is rising. According to recent Confidential Enquiries into Maternal and Child Health (CEMACH) report, 35% of maternal and 30% of neonatal deaths were in obese pregnant women.
Methods: A total of about 18 000 pregnant women from St Helier University hospital were studied (January 2003 to 2008). Data collected from PROTOS system and put on excel sheet before statistical analysis.
Results: 50% of women were found to be pre-obese or obese. Women of Caucasian origin were more likely to be obese ($p<0.001$) as compared to Black and Asian women. The caesarean section rate was 34.5% in obese women as compared to 19.3% in women with normal body mass index (BMI) (statistically significant). The rate of pre-existing diabetes mellitus was between 4.8% in obese women as compared to 1.1% in normal population (p value<0.0001). Similarly, pre-existing hypertension was found in 12.8% of obese women as compared to 2% in women with normal BMI (p value <0.0001). 6.1% of babies born to mothers of normal BMI were admitted as opposed to 7.9% born to obese mothers. The still birth rate was 1.2% in obese women as compared to 0.25% in normal BMI mothers. Up to 24.5% of babies born to obese mothers weighed >4 kg as compared to 8.6% in normal BMI (statistically significant).
Conclusions: This study shows that obesity has a negative impact on pregnancy by increasing antenatal and postnatal complications. A multidisciplinary weight management clinic is suggested to optimise weight control and identify risks for obese women.

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PM.07 MATERNAL HAEMODYNAMIC CHANGES AND HEART REMODELLING IN PREGNANCIES COMPLICATED BY EARLY ONSET PRE-ECLAMPSIA

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Objective: To compare hemodynamic changes and heart remodelling between pregnancies complicated by early onset pre-eclampsia (PET) and those with a normal outcome.
Methods: Maternal echocardiography was undertaken at diagnosis in 13 pregnant women presenting with early onset PET. The data were then compared with those obtained from a control group of 13 healthy women with uneventful pregnancies that were matched for age, body mass index, parity, ethnicity and gestational age at assessment.
Results: The haemodynamic data revealed a significant difference between PET and control pregnancies for mean arterial pressure but not for heart rate, stroke volume, cardiac output, cardiac index or total vascular resistance. In contrast, the heart remodelling parameters demonstrated that ventricular wall dimensions (both in systole and diastole), left ventricular mass, left ventricular index and left atrial dimension were significantly higher in the PET compared to control pregnancies.
Conclusions: Pregnancies complicated by PET demonstrated an increased LV mass as a consequence of increased wall thickness whilst retaining a normal cavity size. This pattern of cardiac (concentric) hypertrophy is known to be a mechanism of adaptation to increased afterload as it reduces wall stress, preventing an imbalance between myocardial oxygen demand and supply.

PM.08 ASSESSMENT OF MATERNAL RADIAL AND LONGITUDINAL SYSTOLIC FUNCTION IN PREGNANCIES COMPLICATED BY EARLY ONSET PRE-ECLAMPSIA

K Melchiorre, G Sutherland, A Baltabaeva, B Thilaganathan. *St. George's, University of London, London, UK*

Objective: To compare radial and longitudinal systolic function by conventional cardiac parameters and tissue Doppler (TD) indices between pregnancies complicated by early onset pre-eclampsia (PET) and those with a normal outcome.
Methods: Maternal echocardiography was undertaken at diagnosis in 13 pregnant women presenting with early onset PET. The data were then compared with those obtained from a control group of 13 healthy women with uneventful pregnancies that were matched for

age, body mass index, parity, ethnicity and gestational age at assessment.
Results: Radial function assessed by both ejection phase indices (ejection fraction, fractional shortening, ejection time, left ventricular end diastolic volume, left ventricular end systolic volume) and TD indices (peak systolic myocardial fibre velocity, peak systolic myocardial fibre strain rate and end systolic myocardial fibre strain) were not significantly different between the two groups. However, both global and regional longitudinal systolic function, as assessed by TD indices (displacement, peak systolic velocity, peak systolic strain rate and end systolic strain) were significantly lower in the PET compared to control pregnancies.
Conclusions: In pregnancies with early onset pre-eclampsia, longitudinal systolic function is depressed but radial systolic appears to be preserved. Evaluation of longitudinal instead of radial function may be a more sensitive assessment of systolic function in pregnancies complicated by pre-eclampsia.

PM.09 MATERNAL DIASTOLIC FUNCTION ASSESSED BY MITRAL INFLOW PATTERN AND TISSUE DOPPLER IN PREGNANCIES COMPLICATED BY EARLY ONSET PRE-ECLAMPSIA

K Melchiorre, G Sutherland, A Baltabaeva, B Thilaganathan. *St. George's, University of London, London, UK*

Objective: To compare diastolic function by mitral inflow pattern and tissue Doppler (TD) indices between pregnancies complicated by early onset pre-eclampsia (PET) and those with a normal outcome.
Methods: Maternal echocardiography was undertaken at diagnosis in 13 pregnant women presenting with early onset PET. The data were then compared with those obtained from a control group of 13 healthy women with uneventful pregnancies that were matched for age, body mass index, parity, ethnicity and gestational age at assessment.
Results: Conventional mitral inflow assessment demonstrated that early diastolic transmitral flow velocity (E) was unchanged and late diastolic transmitral flow velocity (A) was significantly higher in PET compared to control pregnancies. TD assessment demonstrated significant reduction in early diastole myocardial fibre velocity (Em) and a significant increase in late diastole myocardial fibre velocity (Am wave) increased at several myocardial sites in the PET vs control pregnancy group. Although the E/Em ratio (LV and LA filling pressure indirect indices) was always within the normal reference range, these indices were also significantly increased at several myocardial sites in the PET vs control pregnancy group.
Conclusions: Diastolic function appears to be abnormal in PET compared to normal pregnancy. Impaired myocardial relaxation in PET may be due to the higher afterload which necessitates an increase in left atrial function in order to preserve a pressure gradient to allow adequate left ventricular filling. Alternatively, impaired myocardial relaxation may be due to the increase in LV mass, which may reduce ventricular compliance, necessitating enhanced atrial contraction.

PM.10 COMPARISON OF PLACENTAL VASCULARITY WITH THREE-DIMENSIONAL POWER DOPPLER ANGIOGRAPHY IN PRE-GESTATIONAL DIABETES AND UNCOMPLICATED PREGNANCIES

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Introduction: Vascularity within a three-dimensional (3D) ultrasound volume of a placenta can be calculated using the signal intensity of power Doppler information, the Flow Index (FI). This index is thought to be independent of the volume size. We hypothesised that pre-gestational diabetes causes an increase in placental Flow index.
Methods: Women with pre-gestation diabetes and those with otherwise uncomplicated pregnancies were scanned with 3D power Doppler at 12 weeks, 16 weeks and 20 weeks gestation. The FI was measured within the 3D volumes and comparisons made between the two groups at each gestation. Images were analysed twice to assess reproducibility.
Results: Volume and FI results were normally distributed. At 12 weeks, the mean FI (50.46; (SD) 4.82) of diabetic pregnancies (n = 24) were significantly greater than the mean FI of controls (n = 30) (45.91; 4.09) ($p<0.001$). This difference in FI was also seen at 16 weeks, diabetic pregnancies (n = 19) (53.62; (SD) 3.45) vs controls (n = 30) (47.94; (SD) 3.86; $p<0.001$) and 20 weeks, diabetic pregnancies (n = 16) (53.58; (SD) 3.09) vs controls (n = 30) (48.49; (SD) 3.95; $p = 0.001$). Intraclass correlation coefficient for this index ranged from 0.919 to 0.951 in the normal group to 0.989 to 0.995 in the diabetic group.

There was no difference in the mean placental volumes between the two groups at 12 to 20 weeks gestation.
Conclusion: Pre-gestational diabetes is associated with increased angiogenesis and villous vascularity on histological examination. Our study suggests that this increase in vascularity is already present in the second trimester.

PM.11 METFORMIN IN GESTATIONAL DIABETES – A REVIEW OF 127 PATIENTS AND A COMPARISON WITH INSULIN TREATED PATIENTS

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Objective: To compare maternal and neonatal outcomes in women with gestational diabetes mellitus (GDM) treated with either metformin or insulin.
Methods: We prospectively studied 127 consecutive women with gestational diabetes who were not adequately controlled by diet. They were treated with metformin 500 mg bd and the dose titrated up to a maximum of 2500 mg/day. Pregnancy outcomes in the 100 women who remained exclusively on metformin were compared with 100 women with GDM treated with insulin matched for age, body mass index (BMI) and ethnicity. The principal outcome measures were maternal weight gain, pre-eclampsia, hypertension, premature birth and neonatal morbidity
Results: There were no significant differences in baseline maternal characteristics between metformin and insulin groups. Women treated with insulin had significantly greater mean (SEM) weight gain (kg) from enrolment to term (2.72 ± 0.4 vs 0.94 ± 0.3; $p<0.001$). No perinatal loss occurred in either group. Neonatal morbidity was improved in the metformin group; prematurity (0% vs 10%, $p<0.01$), neonatal jaundice (8% vs 30%, $p<0.01$) and admission to neonatal unit (6% vs 19%, $p<0.01$). Macrosomia (Birth weight centile >90) occurred less frequently in the metformin (14%) compared with insulin-treated (25%) group.
Conclusions: Women with GDM treated with metformin and with similar baseline risk factors for adverse pregnancy outcomes had less weight gain and improved neonatal outcomes compared with those treated with insulin. These data taken together with the results of recent trials indicate potential advantages for metformin treatment in GDM.

PM.12 IS IT BENEFICIAL TO SCREEN PREGNANT PRE-GESTATIONAL DIABETIC WOMEN FOR ANTI-PHOSPHOLIPID ANTIBODIES?

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Background: Previous research has demonstrated an increased rate of carriage of the anti-phospholipid antibody (APL), in pregnant

women with insulin dependent diabetes. This tendency was also directly related to significantly higher rates of pregnancy complications compared to APL negative diabetic women.

In 2006, we reviewed the progress of women with pre-gestational diabetes attending our clinic that had experienced an unexplained late pregnancy loss in the antecedent pregnancy. Four of the five women (75%) were APL positive (first trimester screening due to previous pregnancy loss) and all went on to excellent pregnancy outcomes following treatment with low dose aspirin and low molecular weight heparin. On the basis of the published research and our anecdotal experience, we instituted first trimester APL screening for all our pre-gestational diabetic women.

Aim: To evaluate the possible benefits of screening pre-gestational diabetic women for APL, during the first trimester of pregnancy.

Method: A retrospective analysis of the clinical progress of 32 pre-gestational diabetic women that were screened for APL in the first trimester.

Results: APL was not detected in any of the women.

Only one woman had a significant complication (miscarriage). There were no cases of pre-eclampsia or fetal growth restriction.

The possible reasons for the low detection rate will be discussed including clinical features of the screened women and frequency of testing.

Conclusion: Routine screening of pregnant pre-gestational diabetic women for APL does not appear to be justified.

PM.13 A DGH EXPERIENCE OF ONE-HOUR GLUCOSE TOLERANCE TEST VALUES: HELPFUL OR MUCH ADO ABOUT NOTHING?

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Background: Traditionally, fasting and two-hour values of glucose tolerance test (GTT) are used for the diagnostic criteria of gestational diabetes mellitus (GDM). In the UK, good data on the significance of the one-hour GTT value in everyday clinical practice is distinctly lacking. Three years ago we decided to incorporate the one-hour GTT value into our departmental diagnostic criteria for GDM.

Aim: To assess the significance of an abnormal one-hour GTT value when the fasting and two-hour values are within the normal range.

Method: A retrospective analysis of the clinical progress of 100 women who had been diagnosed as GDM solely based on their one-hour GTT result after a 75 g glucose load. Two groups were made; group 1 (n = 28) (9–10 mmol/l) and group 2 (n = 72) (>10 mmol/l).

Results: 14% of group 1 and 19% of group 2 required insulin during pregnancy. All the women had a 1 h value >9.5 mmol/l. 11% of group 1 and 45% of group 2 developed complications like polyhydramnios, macrosomia and pre-eclampsia. 6% and 29% of attendants in groups 1 and 2 respectively, had an abnormal postnatal GTT.

Conclusions: A significant proportion of women with a 1 h GTT value >9.5 mmol/l required insulin, justifying our implementation of this measure in the management of GDM. However, widespread implementation of this measure will invariably be associated with resource and workload implications and should not be embarked upon without appropriate arrangements in place.

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PM.14 OBESITY IN PREGNANCY: AN EMERGING OBSTETRIC EPIDEMIC

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Introduction: The worldwide prevalence of obesity has steadily increased over the years. Today, one in five women attending antenatal clinics in the UK is obese.[1] Pre-pregnancy obesity is associated with serious short and long-term complications for the mother, such as increased risks of gestational diabetes, caesarean section and postpartum haemorrhage;[2] and fetal complications include increased risks of macrosomia and stillbirth.[3] We present a comparison of the obstetric outcome amongst women with various body mass index (BMI) groups at Royal Oldham Hospital.

Aims and Objectives: To compare the obstetric outcome amongst women with BMI <30, 30–39.9 and ⩾40.

Material and Methods: A retrospective review of maternity data on the Euro-king system between June 2006 and June 2008 (n = 6618) at our hospital.

Results: Of the 6618 women, 77.18% were of BMI <30, 17.51% were of BMI 30–39.9 and 2.25% were of BMI ⩾40.

Conclusions: The current obesity epidemic is vastly underestimated. Its far reaching implications significantly influence maternal and fetal wellbeing. Our observations have shown that gestational diabetes, operative delivery, macrosomic babies and shoulder dystocia are higher in obese women. These findings provide further evidence of the negative effects of pre-pregnancy obesity and emphasise the need for national or regional guidelines for the management of obesity in pregnancy.

Abstract PM.14 Statistical agreement analysis for self-reported and measured body mass index (BMI)

Complications	BMI <30 (n = 5018)	BMI 30–39.9 (n = 1159)	BMI ⩾40 (n = 149)
Gestational diabetes	1.22%	2.42%	5.37%
Caesarean section	21.10%	32.78%	46.30%
Postpartum haemorrhage	17.95%	28.73%	32.21%
Macrosomia	0.52%	1.46%	4.69%
Shoulder dystocia	1.05%	1.63%	2.00%
Stillbirth	0.43%	1.20%	0.67%

PM.15 PROVISION OF PRECONCEPTION CARE SERVICES FOR WOMEN WITH DIABETES: STAKEHOLDER ANALYSIS AND FUTURE SERVICE DELIVERY RECOMMENDATIONS

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Diabetes is the fastest growing global epidemic. There is strong evidence that pre-pregnancy care has positive effects on pregnancy outcome (Ray *et al*, 2001). In the UK, no more than 35% of women with pre-gestational diabetes receive any type of pre- pregnancy counselling (Confidential Enquiries into Maternal and Child Health (CEMACH) Diabetes project). Despite numerous policy documents including CEMACH, NSF and National Institute for Health and Clinical Excellence (NICE), professionals have failed to target women in a multidisciplinary way providing preconception advice that is accessible, relevant and timely.

This project was a qualitative stakeholder analysis of women with diabetes in the southeast London area. There were in-depth interviews with an emphasis on women from black and ethnic minority communities and there was a cross-section of pregnant women, those planning and those not planning a pregnancy. A number of health professionals were also interviewed.

The main findings revealed a lack of integration between primary and secondary care; a lack of understanding among GPs particularly about diabetes preconception care; structural barriers caused by the operation of the Quality Outcomes Framework; and within secondary care, a failure to adopt a consistent pathway. Other findings included views on the understanding of preconception care by women, issues around communication and receiving messages about risk and the nature of culturally competent care. This study

informs the future provision of pre-pregnancy education and counselling in urban areas with diverse populations.

PM.16 VENOUS THROMBO-EMBOLIC DISEASE IN PREGNANCY AND POSTPARTUM PERIOD: 10 YEARS' EXPERIENCE

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Background: Venous thromboembolism (VTE) is one of the top five causes of maternal mortality in the UK. We assessed pregnancy-associated VTE for type and timing of events, risk factors and clinical management in a large trust delivering 9000 women per annum.
Material and Methods: All cases of VTE in pregnancy and postpartum confirmed with imaging occurring over a 10-year period were included. We have excluded cases with suspected VTE and negative imaging. Cases were identified from obstetric, radiology, haematology and laboratory records. Data were extracted regarding demographic details, time of diagnosis, results of thrombophilia screen and management.
Results: 115 cases were identified with an annual incidence of 1.2/1000 deliveries. Abstract PM.16 summarises the time of diagnosis of VTE. We also observed one retinal artery, one retinal vein and four cerebral vein thromboses. 15 patients (13%) had previous VTE and 28 (24%) had a positive family history. Abnormal thrombophilia screen was identified in 24/115 (23.2%) of cases. Management was primarily with low-molecular-weigh heparin antenatally and warfarin postnatally. Anti-Xa level was checked in all cases but added little information to the management. Five patients had caval filters inserted.
Conclusion: Comparing recent Royal College of Obstetricians and Gynaecologists (RCOG) guidelines, our imaging methods and treatment are adequate. Thrombophilia screening and measurement of peak anti-Xa activity added little useful information.

Abstract PM.16 Distribution of venous thromboembolism (VTE) events during pregnancy and puerperium (114 cases)

	First	Second	Third	Postnatal	Total	%
PE	6	4	12	10	32	28%
DVT	14	10	26	27	77	67%
Other	1	2	1	2	6	5%

PM.17 INFERIOR VENA CAVA FILTER USE IN PREGNANCY: PRELIMINARY EXPERIENCE AND FAILURE OF RETRIEVAL IN TWO CASES

GA Abou, El Senoun, PA Howells, B Myers, H Mousa. *Queen's Medical Centre, Nottingham, UK*

Background: Retrievable inferior vena cava filters (IVCFs) are used in selected high-risk cases to offer protection against pulmonary embolism around the time of delivery when discontinuation of anticoagulants is required to reduce the risk of bleeding.
Aim: To examine the safety of used of IVC filters during pregnancy.
Methods: Data were extracted from obstetric, haematology and radiology records. Thrombotic events during pregnancy were identified and case notes were examined. Data were extracted regarding demographic details, antenatal risk factors and results of thrombophilia screen. We have included only cases with confirmed VTE and IVCF insertion.
Results: Out of 115 cases with thrombotic events during pregnancy and/or puerperium, four women required IVC filter insertion during pregnancy. All had recent episode of proximal deep vein thrombosis in the third trimester and filters were inserted around the time of delivery. Failure of retrieval of the IVCF on day 28 occurred in two cases because of filter tilt. The timing and mechanism of filter tilt remains uncertain. We believe that a number of factors could have been involved, including change in the anatomic configuration with lateral displacement of the IVCF as a result of the gravid uterus as well as forceful uterine contractions during labour, which modify the shape and diameter of the IVC. Long-term anticoagulants were considered for both of them.
Conclusion: Failure to retrieve the IVCF has implications for the two young patients regarding long-term anticoagulation. Further work is required to identify the safety of use of retrievable IVCFs during pregnancy.

PM.18 CEREBRAL VEIN THROMBOSES: EXPERIENCE IN MANAGEMENT IN THE PERINATAL PERIOD

GA Abou El Senoun, PA Howells, B Myers, H Mousa. *Queen's Medical Centre, Nottingham, UK*

Background: Cerebral vein thrombosis is a rare but life-threatening event. It has been identified as an important cause of maternal mortality. In the last Confidential Enquiry into Maternal and Child Health (CEMACH) 2007 report there were eight cases of maternal death secondary to cerebral vein thrombosis.
Objectives: To examine risk factors and management of women diagnosed with cerebral vein thrombosis during pregnancy and/or puerperium.
Methods: Data were extracted from obstetrics, haematology and radiology records. Cases with any thrombotic events during pregnancy or puerperium were identified and cases notes were examined. Data were extracted regarding demographic details, antenatal and postnatal risk factors, results of thrombophilia screen. We have included only cases with confirmed cerebral vein thrombosis confirmed on MRI scan.
Results: Over a 10-year period, there were 115 cases of maternal thrombotic events. Four cases of cerebral vein thrombosis were identified. All were under the age of 25 (range 17–21). All except one had negative thrombophilia screen. Persistent worsening frontal headache was the most common presenting symptom. One patient presented with tonic-clonic seizure in the postpartum period. A further patient developed worsening right retro-orbital pain with papilloedema. IV/low-molecular weight Heparins were the main drug treatments in all four patients. There were no maternal deaths.
Conclusions: Maternal cerebral vein thrombosis is a rare but serious thrombotic event. Currently known risk factors are not helpful in identification of high risk group. Careful history-taking and neurological examinations are essential to identify cases that will require MRI scan to confirm the diagnosis.

PM.19 MATERNAL BIOELECTRICAL IMPEDANCE ANALYSIS IS A BETTER PREDICTOR OF BIRTH WEIGHT THAN BODY MASS INDEX

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Background: Increasing body mass index (BMI) has been associated with both increased fetal weight and high birth weight. This study compared BMI with Bioelectrical Impedance Analysis (BIA) as a predictor of birth weight in women who delivered a live baby at term.
Methods: 100 women after a singleton pregnancy were recruited. Women with significant co-morbidities were excluded. Each woman had height measured electronically and body composition measured by BIA (Tanita), using a multi-frequency system. BMI was calculated postpartum and at booking.

Results: The mean birth weight was 3580 g (±490 g SD). The mean BMI at booking was 25.9 kg/m^2 (±4.9 SD). Correlation analysis was performed between birth weight and BMI at booking, postnatal BMI and all components of body composition. Fetal weight did not correlate with maternal BMI at booking. Fetal weight did correlate with postnatal BMI ($p = 0.001$), trunk fat mass ($p = 0.007$), lower limb fat mass ($p = 0.02$), upper limb fat mass ($p = 0.0001$) and most significantly with bone mass ($p = 0.0001$). Stepwise multiple regression analysis revealed that the only significant predictor of fetal weight was maternal bone mass ($r = 0.45$, $p = 0.0001$). We performed further analysis using combined variables and found that using stepwise multiple regression analysis, bone mass combined with upper limb fat mass increased the r value to 0.52 ($p = 0.0001$).
Conclusions: Maternal bone mass measured by BIA, and not BMI, is the most useful component of maternal body composition for predicting birth weight. The relationship between maternal body composition and fetal weight is more complex than hitherto suspected.

PM.20 PLACENTA PRAEVIA – CHANGES IN INCIDENCE, MANAGEMENT AND OUTCOMES

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Aim: To review current management and outcomes of placenta praevia.
Methods: This is a retrospective study of placenta praevia in a tertiary referral centre (Royal Infirmary of Edinburgh). Cases of placenta praevia between 2001 and 2007 were identified by hospital coding and our maternity database. Information was extracted from case notes and compared with data from a previous study of placenta praevia in our unit from 1994–2000.[1] The total number of placenta praevia examined is 423.
Results: Between 2001 and 2007 there was an incidence of placenta praevia of 0.62% (262 cases in 42 022 deliveries). This has significantly increased from 0.42% in 1994–2000 (161 cases in 38 562 deliveries; $p<0.05$). Two main changes in management are evident between the time periods. A higher proportion of cases are now managed as outpatients (67% 2001–2007 vs 48% 1994–2000; $p<0.05$) and since 2001, interventional radiology has been used. One woman had emergency internal iliac arterial catheter embolisation, whilst 14 women had elective placement of internal iliac artery balloon catheters, and outcomes are described. There was no difference in the rate of caesarean hysterectomy (6% (16/272) 2001–2007 vs 6% (6/161) 1994–2000) or rates of neonatal unit admission (26% (68/262) 2001–2007 and 26% (42/161) 1994–2000). Overall, there were two neonatal deaths, two stillbirths and one maternal death.
Conclusions: The incidence of placenta praevia has increased, most likely reflecting the increasing caesarean section rate (16% in 1994 vs 25.9% in 2007). The use of interventional radiology is increasing, but its benefit has not yet been established.

1. **Love CDB,** Fernando KJ, Sargent L, *et al*. Major placenta praevia should not preclude out-patient management. *European Journal of Obstetrics and Gynaecology and Reproductive Biology* 2004;**117**:24–29.

PM.21 DIAGNOSIS OF PLACENTA ACCRETA AND EXPERIENCE WITH INTERVENTIONAL RADIOLOGY: THE SOUTHAMPTON LEARNING CURVE

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Objective: To describe the accuracy of ultrasound and MRI for diagnosis of morbidly adherent placenta and experience with uterine/internal iliac artery catheterisation.
Design: Observational study on suspected cases of morbidly adherent placenta over a five-year period.
Setting: University Teaching Hospital.
Results: Seven confirmed cases of morbidly adherent placenta from 2004 to 2008 were analysed. All had previous caesarean deliveries. The positive predictive value of ultrasound scan was 85%. Six patients had MRI scan and of these, four had confirmed placenta accreta, with positive predictive value of 75% and sensitivity of 75% for MRI. Of the seven patients with confirmed accreta, six had uterine/internal iliac artery catheterisation and intravascular balloon inflation and four had gelfoam embolisation. Of the six who had catheterisation, four required hysterectomy due to failed balloon inflation or persistent bleeding. Five women received blood transfusions and four had Intensive Treatment Unit (ITU) admission. Blood loss ranged from 2000 ml to 12 000 ml (average 6300 ml).
Discussion: In our hospital, the maternity unit is on a different site from the main hospital/ITU and has only one dedicated obstetric theatre. Despite having uterine/internal iliac artery catheterisation, four out of six women required hysterectomy. However, the extent of blood loss and length of hospital stay was potentially reduced by interventional radiology input.
Conclusions: Ultrasound scan is comparable in its accuracy to MRI for diagnosis of morbidly adherent placenta. Providing a facility for interventional radiology in a maternity unit involves considerable organisation, resource allocation and clinical commitments. As experience grows, better outcomes are expected.

PM.22 QUESTIONNAIRE SURVEY ON FUNDOSCOPY AMONG OBSTETRICS AND GYNAECOLOGY TRAINEES

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Objective: To survey the awareness and clinical acumen about fundoscopy as an important clinical examination in patients with pre-eclampsia.
Study Design: Study group included the trainees who attended SpROG's Conference on 26 June 2008 at York. Candidates were requested to fill in an anonymous paper-based questionnaire.
Results: 182 candidates attended and received the questionnaire. Majority of the trainees were of STR level 3, 4 and 5, comprising 55.3% of the total. Response rate was 62% (113); 69% trainees were familiar with fundoscopy.

Of these, 67% trainees reported to be able to recognise normal fundus and 60% could recognise the specific fundoscopy changes in pre-eclampsia.

54% trainees agreed that fundoscopy is an important part of assessment pre-eclampsia whilst only 17% do it routinely.

They were requested to grade their level of confidence in the procedure on the scale of 1 to 5 (1 being least confident and 5 being most confident), 19% failed to comment, 52% reported to have level1 and 2, 29% at level 3 and 4 and none at level 5.

Nearly 70% of trainees expressed a need for further training in fundoscopy.
Conclusions: There is wide variety of fundal changes depending on the severity of pre-eclampsia. Fundoscopy is an important tool in monitoring severity of pre-eclampsia and initiating appropriate management.

Increasing its use improves training opportunities. Most trainees recognise the importance and need for training in fundoscopy.

PM.23 INCREASED MATERNAL BODY MASS INDEX IS ASSOCIATED WITH AN INCREASED RISK OF MINOR COMPLICATIONS DURING PREGNANCY WITH CONSEQUENT COST IMPLICATIONS FOR THE NATIONAL HEALTH SERVICES

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The prevalence of obesity is rising in women of childbearing age. We investigated the effect of maternal body mass index (BMI) on minor complications and drug usage during pregnancy and evaluated the associated costs. A retrospective analysis of 651 case notes was undertaken during 2007 and 2008 of all women delivering in the Royal Infirmary, Edinburgh over four separate time periods. Demographic data, ante- and peri-partum information, minor complications during pregnancy and medication use were recorded. Cost analysis was undertaken using standard techniques and inflation indices. Data were analysed by descriptive statistics, univariate and multivariate logistic regression analysis. Obesity (BMI>30 kg/m^2) during the first trimester compared with normal-weight (BMI <25 kg/m^2) was associated with an increased risk of symphysis pubis dysfunction (SPD) (odds ratio (OR) 4.03; 95% confidence interval (CI) 2.24 to 7.24), heartburn (OR, 2.54; 95% CI, 1.37 to 4.73) and chest infection (OR, 8.71; 95% CI, 2.20 to 34.44) with trends for carpal tunnel syndrome (OR, 2.95; 95% C.I., 0.99 to 8.83); and increased risk of being prescribed insulin (OR, 9.23; 95% CI, 1.77 to 48.29) and Gaviscon (OR, 3.45; 95% CI, 1.76 to 6.75). The additional costs per patient for SPD, chest infection, heartburn and carpal tunnel syndrome were £75.30, £73.13, £108.64 and £16.20, respectively. The mean additional costs for minor complications per person per BMI category were £15.10 (BMI<25 kg/m^2), £16.88 (BMI25<30 kg/m^2) and £47.71 (BMI>30 kg/m^2). In conclusion, increased maternal BMI is associated with increased reporting of minor complications and medication use during pregnancy with consequent adverse cost implications for the National Health Services (NHS).

PM.24 MANAGEMENT OF HYPOTHYROIDISM IN EARLY PREGNANCY – IS THERE A NEED FOR A NATIONAL GUIDELINE?

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Background: Maternal hypothyroidism is associated with poor obstetric outcome and impaired IQ in infants. The British Thyroid Association recommend assessment of thyroid function and increasing thyroxine dosage (by 25–50 mcg/day) to maintain thyroid stimulating hormone (TSH) between 0.4 and 2.0 mU/L. Our aim was to determine whether these targets were being met in a district general hospital setting.
Methods: We retrospectively studied all women with known hypothyroidism (n = 51) that booked at our unit between January 2007 and 2008. We recorded all TSH levels and analysed subsequent management. Six patients were excluded (two miscarriages, two follow-up at different units, one panhypopitutarism and one non-compliance).
Results: 45 women (age 32 years (19–46)) with primary hypothyroidism (37), previous thyroidectomy (5), radioiodine treatment (2) and postpartum thyroiditis (1) booked at a gestation of 8 weeks (4–14). Nine patients (20%) had no thyroid function performed. Of the remainder, 15 (33.3%) were under-treated, 15 (33.3%) were adequately treated and six (13%) were over-treated. Of those under-treated, eight had their thyroxine dose increased by 39±18 mcg (41±28% of original dose). TSH 4–6 weeks later improved (from 6.00±3.90 to 2.98±2.44 mU/L, p = 0.047) however five were either over or under-treated. Six patients had their thyroxine increased "blindly" by 39±13 mcg (39±29% of original dose) prior to booking. At booking, two were adequately treated, three were under-treated and one over-treated.
Conclusions: Women with established hypothyroidism are not adequately tested or treated in early pregnancy. When thyroxine was increased, it did not lead to adequate TSH correction. Local, and perhaps national, treatment guidelines in pregnancy are warranted.

PM.25 ARE RUBELLA NON-IMMUNE PREGNANT WOMEN IDENTIFIED AND IMMUNISED POSTNATALLY? AN AUDIT IN A DISTRICT GENERAL HOSPITAL

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Background: Antenatal rubella infection can cause fetal loss or congenital rubella syndrome characterised by fetal anatomical abnormalities.[1] Routine antenatal rubella screening identifies women who require postnatal MMR vaccination.[1] Media scares have caused a decrease in herd immunity in the UK increasing the risk to non-immune women.
Aim: To gauge how many rubella non-immune women at booking received postnatal MMR vaccination.
Methods: Live births from January to August 2007 were cross-referenced with negative rubella results from 2006 to 2007. The documentation of rubella results in maternal notes, the information GPs received regarding postnatal MMR and whether the vaccination was given were recorded.
Results: The sample size was 92. 55% of GPs were notified that their patient required vaccination but only 16% of the sample were vaccinated. 11% of results documented in handheld pregnancy notes were incorrect, increasing to 13% in postnatal notes.
Conclusions: The current system is ineffective. Laboratory results are misinterpreted and documented incorrectly. There is poor communication of non-immune status between primary and secondary care and responsibility for administering MMR has not been clearly delegated.

Recommendations

1. **Department of Health.** *Immunisation against infectious disease* 2006;**28**:343–64.

PM.26 PREGNANCY OUTCOME IN MOTHERS AT RISK OF GESTATIONAL DIABETES

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Objective: Evaluate the effect of maternal glucose levels, undiagnostic of diabetes, on pregnancy outcome in women at risk of gestational diabetes.
Methods: Records of 3253 women who had a 75 g oral glucose tolerance test between 28 and 32 weeks gestation in a Teaching hospital were reviewed and categorised into seven categories based on fasting glucose levels and into seven categories based on two-hour glucose levels. Outcome measures were caesarean and preterm deliveries, birth weight, stillbirth, shoulder dystocia and admission to neonatal unit.

Categories within fasting and two-hour groups were compared using the chi square test. Noted trends were assessed statistically with chi square for trends.
Results: Caesarean and preterm deliveries increased with maternal fasting glucose levels in a linear fashion (p<0.0001). Birth weight above 4000 g increased with fasting glucose levels in a linear fashion (p<0.0003). There was a linear increase in caesarean and preterm deliveries with two-hour glucose levels (p<0.0001). Birth weight above 4000 g increased with two-hour glucose levels (p 0.0021) though not linearly (p 0.4178). There was a linear increase in stillbirths with two-hour maternal glucose levels (p<0.0048), most

significant in the category with the highest two-hour glucose level (odds ratio (OR) 5.96 CI, 1.6 to 21.45). There was no statistically significant increase in shoulder dystocia in both glucose groups.
Conclusion: Our study demonstrates linear associations between maternal fasting glucose levels undiagnostic of diabetes and adverse pregnancy outcome.

PM.27 MATERNAL INTENSIVE CARE UNIT ADMISSIONS IN OBSTETRICS: INDICATIONS AND OUTCOME

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Background: Intensive Care Unit (ICU) admission is a marker for maternal morbidity and mortality.
Objectives: To determine the indications for ICU admission, the length of stay and outcomes for obstetric patients admitted to ICU.
Methods: A retrospective study of all obstetric ICU admissions in a tertiary level obstetric unit in the East of Scotland from 1 January 2000 to 31 December 2008 was carried out.
Results: There were 26 598 deliveries. A total of 33 obstetric patients were admitted to ICU with a mean age of 33 years (SD ±6 years). The rate of ICU admission was 12.4 per 10 000 deliveries. Massive obstetric haemorrhage was the most common indication for admission to ICU accounting for 42% of admissions. Other indications for maternal admission to ICU were sepsis (12%), pre-eclampsia (9%) pneumonia (9%), pulmonary thrombo-embolism (9%) and cardiac disease (9%). The mean duration of stay in ICU was 1.4 days (SD ±1.15 days). The mean Acute Physiology and Chronic Health Evaluation II score (APACHE II) was 12.1 with predicted maternal mortality of 12.4%. The mean Simplified Acute Physiology Score (SAPS II) was 20.6 with predicted maternal mortality of 4.3%. There was one maternal death due to sepsis with an observed maternal mortality of 3%.
Conclusions: Massive obstetric haemorrhage and sepsis were main causes of maternal admission to ICU. Most of the women were discharged from ICU within 48 h. The SAPS II score was a better predictor of maternal mortality than APACHE II.

PM.28 CHANGES IN OBJECTIVELY MEASURED PHYSICAL ACTIVITY LEVELS DURING PREGNANCY IN OVERWEIGHT AND OBESE WOMEN

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Background: Increased physical activity (PA) during pregnancy may reduce the risk of gestational diabetes and pre-eclampsia. Information on PA during pregnancy using robust measurement methods is limited. We report longitudinal data on PA levels in overweight and obese pregnant women.
Methods: 65 pregnant women with BMI ⩾25 kg/m^2 consented to PA measurement via accelerometry at two or three-time points during pregnancy (14 and 26 and/or 36 weeks). Outcomes included median (IQR) time spent in different activity intensities and proportion of women achieving ⩾30 min of moderate or vigorous PA/day (MVPA)
Results: 45% of participants were nulliparous, mean body mass index (BMI) was 30.7(5.0) kg/m^2 and mean age 30.3 (5.2) years. At 14 weeks, 55 women recorded ⩾3 days of activity. The median (IQR) length of a recorded day was 13 hr 18 m (1 hr 33 m) with 2 hr 5 min (56 m) spent in light activity and 35 min (23 min) in MVPA. 26 and 21 women subsequently recorded ⩾3 days at 26 weeks and 36 weeks, respectively. No significant differences in recorded light or MVPA were found. Throughout pregnancy, over 60% of participants achieved ⩾30 min MVPA/day.

Nulliparous and multiparous women had similar activity patterns at 14 weeks and 26 weeks. At 36 weeks multiparous women spent a greater proportion of recorded time in light activity than nulliparous (20% vs 14%), but the duration of light and MVPA was not different.
Conclusions: PA levels did not change significantly by 26 weeks' and 36 weeks' gestation, showing that women can maintain activity levels. Larger studies are needed to confirm differences in activity between nulliparous and multiparous women.

PM.29 AN AUDIT OF COMPLIANCE WITH A MODIFIED OBSTETRIC EARLY WARNING SCORE IN A DISTRICT GENERAL HOSPITAL

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Introduction: The early warning score (EWS) is a simple physiological scoring system. It enables the early identification and prompt treatment of at risk patients, preventing avoidable deterioration. Confidential Enquiries into Maternal and Child Health (CEMACH) recommends introducing a modified EWS in obstetrics following its successful application in other clinical areas. In Blackpool we introduced a modified version of the trust EWS in January 2008. The trust policy and National Institute for Health and Clinical Excellence (NICE) Clinical Guideline 50 were used as the reference standards.
Methods: A prospective audit of the accuracy of documentation of routine observations and the EWS on the maternity unit at the Blackpool Victoria Hospital.
Results: 99 patients were identified; 12 were excluded as there was no observation chart. Fifty-four (62%) charts were present at the bedside. 149 sets of observations were audited. Demographics were complete on 81 (93%) charts. The majority (71%) of patients had at least two sets of observations within a 24-hour period. Respiratory rate was the worst recorded parameter (60%). 116 (78%) sets of observations had a documented EWS but this total was incorrect on 17 (15%) occasions.
Conclusions: The charts were complicated and the staff used inconsistent methods of documentation. These factors were considered to introduce avoidable error.
Action plan:
- Modify and simplify the current EWS chart
- Inclusion of oxygen saturation in the scoring system
- Staff education
- Re-audit

PM.30 OXYGEN SATURATION RESPONSE TO EXERCISE IN HEALTHY PREGNANT WOMEN

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Background: Shortness of breath is common in pregnancy, usually in the absence of significant underlying respiratory or cardiac disease. One practical approach to exclude significant disease is to measure peripheral oxygen saturation (SaO_2) on exercise. However, no simple standard protocol or normal range has been established.
Objectives: The aims of this study were to assess whether SaO_2 fell below 95% on moderate exertion in healthy pregnant women and to establish a simple, widely applicable protocol.
Methods: 100 healthy pregnant women were recruited from the antenatal clinic. Age, most recent haemoglobin, smoking history and body mass index (BMI) were recorded. SaO_2, using pulse oximetry, and heart rate were recorded at rest and on exertion, aiming for 60% to 80% of maximum predicted heart rate (max HR).[1] The standard ''walk'' was 100 m at normal walking pace followed by climbing two flights of stairs.
Results: Mean age: 30.9 years, mean gestation: 30^{+6} ($24–40^{+6}$) weeks, mean BMI: 27 (21 to 36) kg/m^2; mean Hb: 11.5 g/dl (7.9 to

13.9). 65 were non-smokers, 26 ex-smokers and nine smokers. 99 women achieved 60% to 80% max HR. Mean SaO_2 at rest was 98±1% and 97.7±1% after exercise. In no women did SaO_2 fall below 95%. One woman did not achieve 60% max HR finding the walk too easy.

Conclusions: SaO_2 in healthy pregnant women does not fall significantly on moderate exertion and does not fall below 95%, regardless of age, haemoglobin concentration or body mass index. Our exercise protocol achieves target HR in almost all women and is easily reproducible.

1. **Royal College of Obstetricians and Gynaecologists.** Modified heart rate target zones for aerobic exercise in pregnancy.

PM.31 ANTENATAL INTRAUTERINE GROWTH RESTRICTION AND PREMATURITY IN TYPE 1 DIABETES: POSSIBLE CONTRIBUTION TO A LOW PNMR

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The Norwich PNMR for babies of type 1 diabetes mellitus (DM) mothers approximates to that of the background population. We compare the obstetric morbidity of 228 babies born 1997 to 2007 with the Confidential Enquiries into Maternal and Child Health (CEMACH) population with reference to delivery indications. The unit policy for third trimester fetal management was fortnightly ultrasound (USS) assessment of growth from 28 weeks, and from 2003, weekly LV and umbilical artery Doppler assessment from 34 weeks, with routine 38 week delivery.

57% delivered before 38 weeks, 13% spontaneously, 44% iatrogenically. Despite this, in a subset of 90 babies born after 2003, only 4% born above 34 weeks gestation had respiratory morbidity

For the 18 babies delivering before 34 weeks, 38% were spontaneous labours, 44% delivered for hypertension and 11% for antenatal IUGR.

For those between 34 and 37 weeks, 10% were spontaneous labours 25% were delivered for hypertension, 12% for obstetric complications and 25% for static growth/oligohydramnios.

In 20% delivering between 34 and 37 weeks, maternal hypoglycaemia contributed to the delivery decision.

Conclusions: Our antenatal diagnosis of IUGR is higher than CEMACH and these babies deliver early but are not small for gestational age (SGA) babies. We postulate that the identification of IUGR by regular surveillance contributes to our low PNMR. We do not support the National Institute for Health and Clinical Excellence (NICE) recommendation of only monthly third trimester surveillance in T1 diabetes.

Abstract PM.31 Statistical agreement analysis for self-reported and measured body mass index (BMI)

	Norwich 1997/2007	Confidential Enquiries into Maternal and Child Health (CEMACH) 2002/3
PNMR	8.7(1 stillbirth and 1 anencephalic)	31.7
Prematurity	46%	36%
Antenatal intrauterine growth restriction	14%	7.3%
<10th centile at delivery	3%	2.6%
Antenatal macrosomia	45%	36%
>90th centile at delivery	40%	52%

PM.32 ARE COMMERCIAL ASSAY PREGNANCY REFERENCE RANGES FOR THYROID STIMULATING HORMONE, FREE THYROXINE AND RI-IODOTHYRONINE, APPROPRIATE FOR USE IN GLASGOW?

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Introduction: Guidelines suggest using trimester-specific thyroid hormone reference ranges for management and diagnosis of thyroid disease in pregnancy. However, there are variations in thyroid hormone measures between assays. We studied normal women at three stages of pregnancy: 9–12 weeks; 15–18 weeks and 27–30 weeks to assess any deviations in values compared with supplied trimester-specific reference ranges.

Methods: Thyroid stimulating hormone (TSH), free thyroxine (fT4), total triiodothyronine (T3) were measured in 194 women along with assessment of underlying autoimmune thyroid disease (TPO-thyroid peroxidase antibody) using Abbot Architect Analyser.

Results: TPO antibody positive women (TPO +ve, n = 26, 13.4%) had higher T3 (mean ± SEM 2.58±0.08 pmol/l vs control 2.35±0.03 pmol/l; p = 0.02) and TSH (mean 1.66 mU/l vs control 1.04 mU/l; p = 0.0007) after adjustment for gestational age.

After exclusion of TPO +ve women, T3 was higher than the trimester specific median: first trimester 0.46±0.06 pmol/l; second trimester 0.21±0.05 pmol/l; third trimester 0.18±0.06 pmol/l; all expressed as deviation above the median and all $p<0.05$. Free T4 was lower in the first trimester only (−1.3±0.2 pmol/l; $p<0.05$) with no significant deviations for TSH. The proportion of women out with the pregnancy reference ranges (2.5th–97.5th percentile) were: T3 5.7%; fT4 7%; TSH 3.2%; all p = NS).

Conclusions: Thyroid autoantibodies are common in our population. While small deviations exist from manufacturer supplied trimester-specific reference ranges, our data suggest that these are acceptable for local use in pregnancy.

PM.33 EVALUATING CARE OF WOMEN WITH OBSTETRIC CHOLESTASIS – ARE NATIONAL GUIDELINES BEING FOLLOWED?

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Obstetrics cholestasis (OC) affects 0.7% of pregnancies. Controversy exists regarding the association of OC with poor pregnancy outcome. Guidelines for the management of OC were published in 2006.[1] These highlighted lack of evidence underlying much of the management of OC. Although local and national guidelines exist, we hypothesised that management of OC may vary. The case notes of 40 women with OC between 2006 and 2008 were reviewed and compliance with guidelines evaluated.

Following diagnosis of OC, 100% of the women had serum bile acid and liver function tests measured. 15% of the women had a viral hepatitis screen and 12.5% had autoantibodies checked, while 7.5% had liver ultrasound. All of the women had weekly serum liver function tests, bile acids and cardiotocography done. For treatment, all patients were prescribed emollients, 85% antihistamines, 72% ursodeoxycholic acid and 54% vitamin K. In our population, 10% had spontaneous premature birth; the remaining 90% were induced between 37 and 40 weeks. 25% had bile acids checked postnatally.

Despite Royal College of Obstetricians and Gynaecologists (RCOG) guidelines recommending OC as diagnosis of exclusion, only 7.5% to 15% underwent investigation to exclude other causes of liver dysfunction. Ursodeoxycholic acid is used frequently, but other recommended therapies are used more often. Vitamin K is used less often than recommended. Induction of labour remains the favoured management to avoid the increased risk of term stillbirth. We conclude in practice, OC is not made as a ''diagnosis of

exclusion'' and it is not always managed in accordance with RCOG guideline. It is hypothesised that additional investigation and interventions are directed towards preventing term stillbirth.

1. **Royal College of Obstetricians and Gynaecologists.** Obstetric Cholestasis, Guideline No. 43, 2006.

PM.34 WITHDRAWN

PM.35 WITHDRAWN

PM.36 A CASE OF PNEUMOMEDIASTINUM IN PREGNANCY

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Introduction: Recurrent pneumothorax are rare in pregnancy.[2] Acute pneumothorax during pregnancy is potentially serious for both the patient and her fetus.[3]

Case Report: We report a 37 years primigravida who was 40 weeks gestation, brought to our hospital by ambulance following collapse at home. No obstetric notes were brought in. She presented with acute severe hypoxia due to pneumothorax and soon after admission she had a seizure followed by fetal bradycardia. She underwent caesarian section under GA, baby delivered in good condition and transferred to Intensive Treatment Unit (ITU), intubated and ventilated. At this stage we found that the patient had longstanding right pleural endometriosis with multiple pneumothoraces and hydrothoraces and she underwent right-sided pleurodesis five years ago.

A CT chest showed extensive bilateral pnenumothoarces. A left-sided chest drain was inserted on the same day and removed on the following day after patient's clinical condition had improved. Post operative fourth day patient was diagnosed for left-sided lower lobe pneumonia and treated with intravenous antibiotics.

Discussion: Maternal collapse with severe hypoxia and seizures in a patient with previous history of pnenumothorax is highly suggestive of tension pneumothorax. Other differential diagnosis is massive pulmonary embolism, eclampsia, cerebral haemorrhage and epilepsy should also be considered.

Most patients with spontaneous pneumothorax require only conservative management consisting or reassurance, oxygen supplementation and analgesics.[1] Admission and close observation of the patient is usually done with small pneumothoraces. Other treatment options are needle aspiration, decompression, pleurodesis, thoracostomy and thoracoscopy for recurrent, persistent or bilateral pnenumothorax.[2]

1. **Miguil M,** Chekairi A. Pneumomediatinum and pneumothorax associated with Labour. *Case Report Int J of Obs Anaesthesia* 2004;**13**:117–119.
2. **Gorospe L,** Puente S, Madrid C, *et al*. Spontaneous pneumothorax during pregnancy. *South Med J* 2002;**95**:555–558.
3. **Reid CJ,** Burgin GA. Clinical experience of lymphangioleiomyomatosis in the UK. *Thorax* 2000;**55**:1052–1057.

PM.37 EPIDEMIOLOGY, PERINATAL INFECTION RISK AND NEONATAL DISCHARGE OUTCOME OF SUBSTANCE USE IN PREGNANCY – A FIVE-YEAR EXPERIENCE

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Introduction: Substance use in pregnancy poses neonatal risks related to maternal lifestyle, drug use, perinatal infection and child protection issues. This study aims to evaluate these predisposing factors.

Methods: Pregnant women with history of substance use were identified from ''cause for concern'' referrals at our hospital between January 2003 and December 2007. Data were collected retrospectively on mother-infant pairs from medical and laboratory records and analysed on Excel 2003.

Results: 168 women were identified with history of substance use in pregnancy. 90% were unmarried, 43% single and 85% unemployed with median age of 25 years. 98.3% smoked and 61.8% were polydrug users. Methadone, heroin and cannabis were the most frequently used drugs.

Infection screen for HIV, hepatitis B and C were undertaken in 83%, 82% and 58% women, respectively. 30% of those screened were positive for hepatitis C in contrast to 5% for hepatitis B and none for HIV or Syphilis. 11 (17%) of 65 screened were positive for Chlamydia.

Babies of seropositive mothers were twice more likely to complete hepatitis B vaccination schedule (71% vs 35%). Hepatitis C PCR was negative in all babies with available results. 21% newborns were on the Child Protection Register, 17.7% placed in foster care and 14.3% breastfed at discharge.

Conclusions: Smoking, unemployment and single status were frequent with substance use. Hepatitis C prevalence was high with scope for improving screening rates. Hepatitis B immunisation should be targeted to at-risk infants of seropositive mothers. Understanding the socio-clinical risk profile may help direct healthcare resources appropriately.

PM.38 WITHDRAWN

PM.39 TACKLING OBESITY IN WOMEN: THE SERVICE PROVIDERS STORY

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Introduction: In the last 25 years, the prevalence of obesity in the UK has increased by almost 400%. It is estimated that by 2050 nearly 50% of all women will be obese. The current service provision in Lambeth for obese women trying to conceive and obese pregnant women is limited. Maternal obesity care pathways are not in place. A literature review was undertaken and was combined with a stakeholder consultation to establish the best evidence-based intervention.

Methods: 22 interviews were conducted with key stakeholders. Stakeholders were jointly identified with Lambeth PCT and Guy's & St Thomas' Acute Trusts and external stakeholders through snowball sampling. The interviews were semi-structured and based upon a topic guide with open-ended questions.

Results: Various challenges to tackling maternal obesity were discussed. Obese pregnant women are identified by a midwife at the woman's booking appointment. However there is lack of consistency of advice given. Other important issues included motivation to change, cultural and language barriers, overcoming myths and stigmatisation. More emphases were required for tackling obesity before women conceive. The stakeholders recommended developing a maternal obesity care pathway in form of ''one-stop-shop'' multi-component intervention.

Conclusions: The stakeholder interviews have allowed the current pathways of care to be mapped and gaps in the services to be identified. The new services need to be supported by robust marketing strategies and have long-term funding allocated to ensure the programme is sustainable.

PM.40 OBSTETRIC PRACTICE – IS IT REALLY EVIDENCE-BASED?

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Introduction: It is widely accepted that obstetric practice should be based on sound reliable evidence. The RCOG have led the move from anecdotal to evidence based practice with the publication of their widely implemented Green Top Guidelines. This study examines the quality of evidence that supports their recommendations.

Methods: The Royal College of Obstetricians and Gynaecologists (RCOG)internet site was used to access all Green Top Guidelines relating to obstetric practice. Each recommendation and the grade of evidence were recorded. An assessment was made as to the number of recommendations supported by good quality evidence.
Results: 25 Green Top Guidelines were identified which included 341 recommendations. 19% (66/341) were based on grade A evidence, 33% (113/341) grade B evidence, 48% (162/341) grade C evidence. Of those recommendations supported by grade A evidence 27% (18/66) were recommendations not to provide treatments or interventions due to insufficient evidence of benefit. Only one guideline had recommendations fully supported by high quality evidence.
Conclusions: This study illustrates that there is a grave deficiency in high quality evidence to support clinical practice in obstetric. To address this deficiency we must turn our attention to performing high quality randomised control trials, or at least encourage the collection of reliable outcome data to enable observational studies. UK experiences of large randomised controlled trials (RCT) such as the Twin Delivery Study and Term Breech Trials show that recruitment of women is difficult; understanding their reluctance and how this can be changed will ensure the care of pregnant women is driven by highly quality evidence.

PM.41 GASTRIC BANDING AND PREGNANCY WITH COMPLICATION OF GASTRIC TORSION

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Introduction: Laparoscopic adjustable gastric banding (LABG) is a surgical procedure involving insertion of inflatable band to form a gastric pouch near the cardia with 15 ml capacity. The first LABG was done in Belgium in 1993. Gastric torsion after band slippage is extremely rare. We report this rare case as the literature review of gastric banding and complications in pregnancy did not reveal any case of gastric torsion.
Case Report: Mrs VB who had undergone LABG which was deflated prior to pregnancy was admitted at 29 weeks with upper abdominal pain and vomiting for rehydration and total parenteral nutrition. Two weeks after admission, ALT increased to 591 and acute fatty liver of pregnancy was suspected. The gastroenterologist advised immediate delivery. She underwent scheduled Caesarean section at 32 weeks. Her ALT improved but symptoms persisted. Hence, she underwent laparotomy 5 days post section by surgeons. She had slipped band with adhesions and torsion of the stomach of 180 degrees. Post operative period was uneventful.
Discussion: This is the first case reporting complication of torsion of stomach in a pregnant patient who had undergone LABG. Most women who require surgical intervention during pregnancy present with non-specific abdominal complaints and delays often occurred before surgical intervention. Pregnant patients with banding procedure presenting with intractable vomiting present unique clinical dilemma. In addition, our case was complicated by acute fatty liver of pregnancy, probably secondary to intractable vomiting. Hence, we suggest close monitoring and timely surgical intervention must be considered when a surgical emergency is suspected.

PM.42 BODY MASS INDEX IN WOMEN BOOKING FOR ANTENATAL CARE: COMPARISON BETWEEN SELF-REPORTED AND DIGITAL MEASUREMENT

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Maternal obesity is associated with increased pregnancy complications for both the mother and baby. Conventionally, obesity is diagnosed using the World Health Organization (WHO) classification of body mass index (BMI) based on height and weight (kg/m^2). The World Health Organization classifies a BMI >30 kg/m^2 as obese.

We compared self-reported BMI with digital measurement of BMI in women booking for antenatal care in the first trimester of pregnancy. The women reported their height and weight and the measurements were converted to centimetres and kilograms, respectively, to calculate the self-reported BMI. Their height was measured digitally (Seca 242) and weight was measured digitally (TANITA MC 180). Measured BMI was calculated.

Of the 100 women, the mean gestation was 10.9 weeks. Agreement analysis for self-reported and digital measurements of BMI is shown in Abstract PM.42. In total, 22% were misclassified if the BMI was based on self-reporting. Self-reporting also underestimated the prevalence of obesity by 4%. Self-reporting of BMI was inaccurate because 59% of women underreported their weight ($p<0.001$).

Our results are consistent with previous studies outside of pregnancy. These finding have important implication for both clinical practice and research. We strongly recommend that self-reporting of BMI in pregnancy is abolished.

Abstract PM.42 Statistical agreement analysis for self-reported and measured body mass index (BMI)

	Measured self-reported		
	Normal (n = 51)	Overweight (n = 29)	Obese (n = 20)
Normal (n = 59)	47	12	0
Overweight (n = 25)	4	16	5
Obese (n = 16)	0	1	15

PM.43 METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* SCREENING IN OBSTETRICS: DOES IT MEET WORLD HEALTH ORGANIZATION RECOMMENDED CRITERIA?

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In July 2008, the Department of Health issued operational guidance that women booked for elective caesarean or at "high risk of complications" should be screened for methicillin-resistant *Staphylococcus aureus* (MRSA). We reviewed this in relation to published literature and the recommended World Health Organization (WHO) criteria for screening tests.

The importance of MRSA infection or colonisation has not been determined within the maternity population. Only one population-based study estimates the incidence MRSA colonisation in the UK (1.5%). Significant uncertainty exists about the natural history of MRSA colonisation and infection especially within the maternity population. Whilst colonisation may be associated with subsequent infection, no significant maternity data report infection rates in those women with MRSA colonisation compared to those without. No maternity-specific data report the benefits of early vs late treatment or the benefits of decolonisation. Whilst screening is relatively simple and possibly acceptable, no maternity-specific data exist to confirm this. The gestation for optimal testing and then the interval for repeat testing have not been determined. Uncertainty exists around adequate health service provision for the extra clinical workload resulting from screening. Formal maternity-based economic evaluation, including evaluation against other service pressures, has not been performed. The risks of screening, both physical and psychological, have not been clearly determined. Other options for managing MRSA infections have not been evaluated.

Evidence relating maternal to infant colonisation is scarce. Moreover, other sources of transmission have not been evaluated.

Conclusion: MRSA screening within maternity services does not meet the usually recommended WHO screening criteria.

PM.44 SEVERE PRE-ECLAMPSIA: OPTIMISING CARE IN THE HIGH DEPENDENCY UNIT

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Pre-eclampsia poses a significant threat to maternal and fetal wellbeing[1] and recent studies have demonstrated the benefit of obstetric high dependency care (HDU) in severe disease.[2] By identifying current levels of care and facilitating change in clinical practice, audit is central to optimising the treatment of patients.

Retrospective audit of admissions with severe pre-eclampsia to the HDU of our hospital over an eight-month period in 2007 was performed. 16 standards of care were examined based on published guidelines. Eligibility criteria were met by 52 women totalling 57 HDU admissions. 57.7% were nulliparous with a mean age of 30 years. Admissions occurred antenatally (61.4%), intrapartum (10.5%) and postnatally (28.1%). Mean duration of stay was 39 h. Average maximum systolic and diastolic blood pressures were 176 mm Hg and 111 mm Hg respectively. The mean gestational age of delivery was 34 weeks with 73% requiring emergency caesarean section. In five of the assessed standards of care, 100% achievement was demonstrated. The remaining standards were met in 53% to 98% of cases.

In all cases, disease severity was appropriate for HDU admission. Results demonstrated a commendable overall performance but areas have been clearly highlighted for clinical improvement. Realistic targets have been set for re-audit which will be completed over the next six months following multidisciplinary educational group sessions.

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2. **Saravanakumar K,** Davies L, Lewis M, Cooper GM. High dependency care in an obstetric setting in the UK. *Anaesthesia* 2008;**63**:1081–1086.

Abstract PM.44 Areas identified for improvement

Standards of care	Current achievement % cases
Appropriate blood pressure repetition	52.6
Fluid restriction 80–85 ml hour	58.3
Documented clinical chest exam	57.7
Appropriate response to hypertension	57.5

PM.45 CELL SAVER IN MASSIVE OBSTETRIC HAEMORRHAGE – REVIEW OF LITERATURE AND OUR EXPERIENCE OVER THREE YEARS

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Introduction: Cell saver was first introduced in UK in 1970 and since then has been extensively used in vascular, cardiac, trauma and orthopaedic surgery. Obstetrics is another speciality where use of cell saver has a potential role in cases of massive obstetric haemorrhage (MOH).

Aims and Objectives: This study is a review of our experience of using cell saver in obstetrics. The main aim is to determine its role in decreasing need for homologous blood transfusion.

Methods and Materials: This is a retrospective study of patients who were identified as being at high risk of MOH at the time of caesarean section during the period between July 2005 and August 2008. Cases were identified from our electronic database – Euroking. The main indication currently for using cell saver in our unit is placenta praevia and Jehovah's Witness.

Results: A total of 147 cases were identified. Cell saver was used in 67 (45%) of these cases. A total of 13 units of salvaged blood were transfused successfully saving approximately £2000.

Conclusions: Early review of our practice has shown promising results. However, cell salvage has not been more efficient due to various reasons including non-availability of trained staff at the time of emergency. Unfamiliarity of techniques leads to delay in swapping the suction quickly. In cases of placenta praevia, most of the blood loss occurs before delivery and is not usually salvaged. Most of our blood loss is swabbed, not suctioned and lack of salvaging blood from swabs is a contributory factor.

PM.46 AN AUDIT OF ANTENATAL MANAGEMENT AND PREGNANCY OUTCOMES OF OBESE WOMEN AT SUNDERLAND ROYAL HOSPITAL

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Obesity is a worldwide epidemic with major public health consequences. In 2006, 24% of women in the UK were obese. The prevalence of obesity in women of child-bearing age is rapidly increasing and is associated with adverse pregnancy outcomes. The latest Confidential Enquiries into Maternal and Child Health (CEMACH) report, ''Saving Mother's Lives'', stated that more than 50% of women who died were either overweight or obese. This retrospective audit aimed to ascertain whether local guidelines for the antenatal management of obese women were being successfully implemented at Sunderland Royal Hospital and to assess pregnancy outcomes in these women. 62 patients with body mass index (BMI) ⩾35, booked at Sunderland Royal Hospital over a six-month period, were identified.

Results: Only one standard was successfully met; that all women with BMI⩾50 should be notified to UK Obstetric Surveillance System. Despite recommendations that all women with BMI⩾35 should have their weight checked at every antenatal visit, this was only documented for 15% of women. 36% of women with a booking BMI⩾40 received no anaesthetic referral. 88% of women with BMI 35.0–39.9 had a Glucose Tolerance Test at 24 weeks, but this rose to 100% for women with BMI⩾40.

There was an increased rate of complications, which included Caesarean section delivery (38%), postpartum haemorrhage (31%), birthweight ⩾90th centile (27%) and pregnancy-induced hypertension (26%). Failure to achieve standards may have contributed to the increased rate of complications observed. Responsibility for both weight monitoring and staff and patient education must be clearly defined in trust guidelines if improvement in service provision is to be seen at re-audit.

PM.47 MANAGEMENT OF PREGNANCY WITH A LARGE PANCREATIC PSEUDOCYST

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Our abstract is based on a 27 year old patient P0+1, diagnosed with pancreatic pseudocyst on head of pancreas with a small subcapsular splenic haematoma in sixth week of pregnancy. She is a known case of chronic pancreatitis secondary to alcohol abuse which she stopped early in pregnancy. Initial management was conservative with simple analgesia, but as her abdominal pain was not settling at 18 weeks, she was commenced on oromorph and MST with involvement of chronic pain team. Repeat abdominal ultrasound (USS) showed increasing size of pseudocyst and bleeding within. Option of termination of pregnancy was discussed due to severe and poorly controlled pain. Surgeons were initially reluctant to intervene in view of pregnancy and eventually two attempts at cyst aspiration under local anaesthetics were abandoned due to poor tolerance. The third attempt was laparoscopic drainage of a 17 cm×10 cm pseudocyst under GA and posterior gastrotomy performed at 20+ weeks. She was discharged on the third day on

MST, which was gradually reduced and stopped around 27 weeks gestation. The patient came in spontaneous onset of labour at 36^{+6} weeks and progressed to full dilatation to achieve assisted vaginal delivery due to fetal distress delivering a 2.8 kg baby. She was discharged home on third post-natal day (PND) with a plan for follow-up with surgeons. Two cases of successful vaginal delivery were reported with pseudocyst measuring <10 cm in size. Concerns during labour are risks of valsalva leading to pseudocyst rupture causing hypotension and shock which may require Intensive Treatment Unit (ITU) care.

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PM.48 NOVEL INSULIN RECEPTOR MUTATION LEADING TO INSULIN RESISTANCE IN PREGNANCY

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A 39 year old with type 2 diabetes mellitus controlled with metformin required Novorapid insulin 7 weeks into her second pregnancy. Her first daughter delivered at 26 weeks and developed diabetes by her teens. Familial genetic investigations revealed a novel autosomal dominant mutation in the tyrosine kinase intracellular domain of the insulin receptor leading to loss of function in our index patient. Blood glucose was controlled (HbA1c 5.9%) with an escalating regime of Novorapid, up to 65 U per day, divided over three doses and 4 U Insulatard nocturnally. Fetal growth progressed normally with an abdominal circumference and amniotic fluid index both on the 50th percentile. Labour was successfully induced at 39 weeks.

Discussion: We describe a novel insulin receptor gene loss-of-function mutation causing insulin resistance in pregnancy. Successful control of blood glucose with subcutaneous insulin and safe vaginal delivery can be achieved.

Where insulin resistance occurs, circulating endogenous insulin may be high, yet additional exogenous insulin is required. The exogenous insulin dose required depends on β-cell function; in severe forms U 500 insulin use may be necessary, with appropriate caution. Metformin can increase receptor sensitivity.

Hypoglycaemia in the early postprandial period is a common risk with receptoropathies. The mechanism may be related to receptor-dependent hepatic insulin clearance. Eventual β-cell decompensation prevents this, as occurred in our patient.

Genetic counselling is necessary given the 50% risk of inheritance. Fetal monitoring is required as fetuses with receptoropathy are at risk of growth retardation. Neonatal monitoring of glycaemic control is essential.

PM.49 CLINICO-PATHOLOGICAL CORRELATIONS IN PERIPARTUM HYSTERECTOMY

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Peripartum hysterectomy is a rare event complicating 0.42/1000 deliveries.[1] The main indication is placenta praevia/accreta in women with previous caesarean sections (CS). The incidence is increasing with increasing CS rates. Histopathological examination of these specimens can be difficult and clinical suspicions are not always confirmed.

Abstract PM.49

No.	Clinical diagnosis	Confirmed	Additional diagnosis
17	Placenta praevia/increta/percreta	16	Upgraded (4) Downgraded (1)
6	Uterine rupture	6	Placenta accreta (3) Ascending infection (1)
2	Atony (fibroids in one)	2	
2	2° PPH ?cause		Infection/subinvolution
1	? cause		Endocervical tear

Aim: To investigate the clinico-pathological correlation in this setting.

Method: A four-year retrospective study of massive obstetric haemorrhage (MOH) (i.e. transfusion ⩾5 RCC) from January 2004 to December 2007 inclusive in Dublin teaching hospitals. Cases of hysterectomy were identified and clinical and pathological data were examined.

Results: 117 women with MOH were identified out of 93 291 deliveries (1.25/1000). 28 required hysterectomy, yielding an incidence of 0.3 per 1000 deliveries. Parity was 0 in (11%), 1–3 in (78%) and >3 in (11%). 78% of those that required hysterectomy were delivered by CS.

Clinical details provided to the pathologist were detailed, sparse or absent in 60%, 25% and 15%, respectively. There was clinico-pathological correlation in (20/25) 80%. Pathology added additional information in (11/28) 39%. Correlation was improved with better clinical data provided. Clinical and pathological findings do not always correlate in this setting and this should be appreciated in medico legal cases. Correlations can be enhanced by improving communication between obstetricians and pathologists.

1. **Cesarean delivery and peripartum hysterectomy**. UK Obstetric Surveillance System Steering Committee. *Obstet Gynaecol* 2008 Jan;**111**(1):97–105.

PM.50 METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* SCREENING IN OBSTETRIC WOMEN

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Introduction: Detection of methicillin-resistant *Staphylococcus aureus* (MRSA) is important in reducing costs to both patients and hospitals alike. By screening for MRSA, it is possible to reduce morbidity, mortality, length of hospitalisation and financial costs to the hospital: it is estimated that MRSA costs the National Health Service 3.4 billion US dollars annually.[1]

Method: Using an Infection Control database and a record of women attending a clinic at the University Hospital of North Staffordshire (UHNS) where MRSA screening swabs were taken for high-risk groups, antenatal women who contracted MRSA between 5 March 2008 and 18 July 2008 were identified. The notes of these women were then obtained to examine which risk factors they had and their mode of delivery.

Results: Eight women were identified. Only two of these were picked up by the clinic screening. One woman was picked up by screening elsewhere. The remaining five were only detected postnatally with positive Caesarean wound and perineum swabs, although one of these five women had a previous negative screening swab. Two of the five attended the clinic but were not screened at that time despite being high-risk for MRSA.

Conclusions: Current screening is picking up about half of the cases of MRSA at UHNS. Suggestions for future practice include

using community midwives to target screening high-risk women, or blanket screening of all antenatal women in order to reduce post-operative MRSA infections. Since this audit started, the Trust has adopted a policy of screening all antenatal women.

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Uterine natural killer cells in patients with recurrent miscarriage show evidence of proliferation and differentiation but not trafficking (in *Fetal and Neonatal Edition* 2009;**94**(Supplement 1):Fa58–Fa71). The authors are listed incorrectly. The correct list of authors is A Karam, L Khan, J Drury, A Tang, M Turner, S Quenby.