Conclusion Chromosomal microarray is useful prenatally particularly for an abnormal fetal USS. Prospective counselling should include the approximate VOUS rate (1.4% rising to 2.1% for abnormal USS). It is likely that microarray testing will replace karyotyping in high risk pregnancies (such as abnormal USS).

PF.02 THE ROLE OF QUANTITATIVE FETAL FIBRONECTIN AND CERVICAL LENGTH IN PREDICTING SPONTANEOUS PRETERM BIRTH IN MULTIPLE PREGNANCIES

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Background Multiple pregnancies are associated with a higher risk of spontaneous preterm birth (sPTB). Whilst fetal fibronectin (fFN) and cervical length (CL) measurement can predict sPTB in singleton pregnancies (Kurtzman *et al,* 2009), their value for twin pregnancies is unknown.

Methods Prospective blinded secondary analysis of longitudinal samples of cervicovaginal fluid fFN concentration (nanograms per mililiter) using a bedside 10 qfFN analyzer (HOLOGIC, USA), and transvaginal ultrasound CL of 93 consecutive women with multiple pregnancies attending a Preterm Surveillance Clinic at St. Thomas Hospital from 18 weeks gestation (Oct 2010–Jan 2012). qfFN was assigned 4 ranges; <10, 10–50, 50–200, >200 (ng/ml) to detect spontaneous delivery before 30, 34 and 37 weeks. qfFN was blinded to clinicians using an embedded code in the analyzer.

Results The rate of sPTB (<37 weeks) rose increased with increasing qfFN from 17.5% (<10 ng/ml) to 61.5% (>200 ng/ml) and the negative prediction value for sPTB <30 weeks at <10 ng/ml was 98%. 4/13 (30%) of women with qfFN > 200 ng/ml delivered <30 weeks gestation. Using combined CL/qfFN testing, the positive prediction value of a qfFN value >200 ng/ml and CL < 25 mm was 87.5% for SPTB <37 weeks.

Conclusion This is the first report of 10 qfFN in twins, demonstrating that it adds predictive value to the qualitative results (negative cut-off at 50 ng/ml). High levels, even in early pregnancy, are associated with preterm delivery. Using cervical length and qfFN, management can be targeted to this group; e.g. antenatal maternal steroids. Further research should evaluate interventions to prolong pregnancy in this highest risk group, while lower risk women can be reassured.

PF.03 CRITERIA FOR A LEGITIMATE LIFE: TERMINATION OF PREGNANCY FOR NON-LETHAL FETAL ANOMALY AS AN ACCEPTABLE OUTCOME FOR AN AFFECTED PREGNANCY

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Introduction Advances in diagnosis and treatment, coupled with increased social status of people with disabilities, make society's responses to termination of pregnancy for fetal anomaly (TOPFA) more contentious. This study aims to understand medical and social care professionals' perspectives on the meanings and implications of non-lethal disability from birth, and to evaluate the relationship with perceptions of TOPFA.

Methodology Qualitative, in-depth interviews were conducted with 14 medical professionals and 9 social care professionals. The data were analysed using a generative thematic approach.

Results For social care professionals, abnormal experience of life had become the norm; their narratives of the consequences of fetal anomaly for family life were more nuanced, containing more detailed discussion of the complexities of living with a disabled person. In contrast, medical professionals' accounts of family life with an affected person were dominated by the consequences for the affected individual. The impact of predicted long term outcome in relation to decisions about TOPFA varied across both professional groups; at one end of the spectrum, some professional felt perceived risk was enough to support TOPFA; at the other extreme, individuals who had seen positive outcomes with a specific condition felt TOPFA was not acceptable.

Conclusion The professional groups discuss similar issues, but interpret them differently. Social care professionals focused on their professional insight into life with an affected person; this was used as a rationale for both accepting and not accepting TOPFA. Medical professionals focused on the perceived seriousness of the condition and the wording of the legislation.

PF.04 ABNORMAL PLATELET REACTIVITY IN PREGNANCIES COMPLICATED BY INTRAUTERINE GROWTH RESTRICTION

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Platelet function in pregnancies complicated by intra-uterine growth restriction (IUGR) is not well understood. We sought to evaluate platelet function in response to multiple concentrations of multiple agonists in pregnancies complicated by IUGR using a novel platelet function assay.

Cases of intrauterine growth restricted singleton pregnancies were recruited following ultrasound diagnosis between 24–40 weeks gestation (estimated fetal weight <10th centile for gestational age) in a tertiary referral centre. A modification of standard light transmission aggregometry was used to assess platelet reactivity. Several agonists were assessed at incremental concentrations to characterise the response to multiple receptors. The findings were compared to healthy controls matched for gestational age with normal fetal weight.

A total of 24 pregnancies complicated with IUGR and 36 healthy controls were recruited. Platelet reactivity in response to the agonists Arachidonic acid, Adenosine-diphosphate, Epinephrine and Thrombin-receptor activating protein was significantly reduced in the IUGR cohort. There was a nonsignificant trend to decreased reactivity in response to collagen (Table 1).

Abstract PF.04 Table 1 Concentration of EC_{50} for each agonist

Agonist	EC50		P value
	Normal pregnancy	IUGR	
Arachidonic acid	0.064	0.283	<0.0001
Adenosine-diphosphate	21	54	0.0007
Collagen	0.052	0.427	0.0973
Epinephrine	231.4	3839	0.0015
Thrombin-receptor activating protein	10.27	71.54	<0.0001

In pregnancies complicated by IUGR there is a significant decrease in platelet function compared to healthy pregnant controls. This may reveal valuable insights into the patho-physiology of the disease, and may represent an inadequate growth factor response in IUGR. Further evaluation of the role of platelets may and aid in the development of future interventions for IUGR.

PF.05 ADVANCES IN TRISOMY 21 SCREENING IN THE WEST MIDLANDS, 1995–2011

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Background Screening for trisomy 21 (T21) in the West Midlands has evolved from double screening in 1995 to combined screening in 2011, with the perception of improved detection amongst the public and providers.
Methods Cases of T21 (n = 2,608) were identified using a regional, population-based, multiple source anomaly register covering a birth cohort of 1,140,866 between 1995 and 2011. Regional data on invasive testing were available for the same period.
Results The total prevalence of T21 increased by approximately 50% from 18.2 to 27.5 per 10,000 births over the study period. The proportion of cases with a prenatal karyotype was unchanged (annual trend $\chi^2 = 0.21$, p = 0.65; 52.8% in 1995 and 52.0% in 2011. However, karyotyping was taking place earlier in pregnancy; median gestation at procedure 19 weeks (1995) to 13 weeks (2011). TOP rates following prenatal karyotyping were unchanged, and the live birth rate was increased Within the total population (affected and unaffected pregnancies), the rate of amniocentesis and CVS combined for T21 indications decreased by 76% (4.7% of births in 1995 to 1.1% in 2011).
Conclusion The time and effort to develop the T21 screening programme has resulted in safer pregnancies for unaffected cases. Mothers of affected pregnancies have seen no improvement in prenatal diagnosis. The combination of an increasing prevalence of T21 with no change in prenatal diagnosis nor TOP rates means the live birth prevalence continues to rise at the same pace.

PF.06 NEONATAL OUTCOMES FOLLOWING EXTREMELY PRETERM PRELABOUR RUPTURE OF MEMBRANES (EPPROM) IN MULTIPLE PREGNANCY

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Aims and Objectives To assess the neonatal outcome of multifetal pregnancies that are complicated by Extremely Preterm Prelabour Rupture of Membranes (EPPROM) under 24 weeks of gestation.

To assess antenatal, and postnatal morbidity for both mothers and babies.
Study design The following is a retrospective observational study of twins and triplets who were referred to the Centre for Fetal Care (CFC) at Queen Charlotte's and Chelsea Hospital (QCCH) who had an antenatal diagnosis of spontaneous EPPROM under completed 24 weeks of gestation. The population were subdivided in to the following three groups: monochorionic, dichorionic, and trichorionic. The scan data base, the obstetrics and the neonatal records of 52 women and their 108 fetuses, were the sources of the information. Our study covered a 10 year period (2002–2012), and then result was analysed
Results The median gestation at PPROM was 22 + 5 weeks (range 13–23 + 6). The latency period Median was 10 days (range 1–91 days), while the mean gestational age at delivery was 25 + 2 weeks (range 18–37) and the median fetal weight was 630 g (range 290–3500 g), pregnancy loss of 33.3% and neonatal of 29.63%. The overall survival rate was 36.11% (39 fetuses).
Conclusion Neonatal survival in EPPROM is very poor (36.11%), comer in male fetuses who had worse outcome in terms of prematurity complications and perinatal/neonatal survival.

MCDA twins had worse outcome than DCDA, in terms of antenatal complications and survival (36.36% v 72.97%).

The optimal management with EPPROM before viability remains controversial and guideline are lacking

PF.07 EXPRESSION OF 2, 3-BISPHOSPHOGLYCERATE MUTASE (BPGM) IN HUMAN PLACENTA

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Introduction BPGM is an enzyme in erythrocytes and trophoblasts, which synthesises 2, 3-bisphosphoglycerate (2, 3-BPG), a facilitator of oxygen liberation from haemoglobin. In an insulin-like growth factor II knockout mouse model of intrauterine growth restriction (IUGR), placental BPGM expression is lower than in wild type animals, implicating BPGM in the pathophysiology of IUGR and suggesting a role for 2, 3-BPG in oxygen delivery to the fetus.
Methods Human placental messenger RNA encoding BPGM was quantified by TaqMan RT-PCR. The relative expression of BPGM was assessed a) over the course of pregnancy at 7–11, 12–20, 24–34 weeks of gestation (w) and term (total n = 68), b) in IUGR placenta at early (24–34 w, n = 15) and late (37–39 w, n = 5) gestations and compared with appropriately grown for gestation age (AGA) controls (n = 8 early, n = 26 late).
Results BPGM mRNA expression significantly increased with advancing gestation (ANOVA p < 0.001). There was a 6 and 7-fold increase from 7–11 w to 24–34 w and term respectively, and 3-fold between 12–20 w and term (p < 0.05 for all). There were no statistically significant differences in BPGM mRNA expression between IUGR and AGA placenta in either gestational age group.
Discussion Levels of BPGM increased in a time-dependant manner to term. This may indicate a protective mechanism to avoid oxidative stress damage during the early stages of fetal development, with BPGM expression increasing over time in response to greater oxygen demand from the growing fetus. Placental BPGM expression does not appear to be implicated in the pathogenesis of IUGR in human.

PF.08 QUANTITATIVE FIBRONECTIN CAN BE USED FOR EARLIER PREDICTION OF PRETERM BIRTH FROM 18 WEEKS, BUT THE POSITIVE THRESHOLD NEEDS REDEFINING

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Introduction Fetal fibronectin (fFN) is an excellent predictor of spontaneous preterm birth (sPTB) and is used qualitatively (<50 ng/ml negative threshold) from 22 weeks gestation. Its value at earlier gestations using a quantitative test (qfFN) is unknown.
Methods A prospective secondary analysis of 431 asymptomatic women at high risk of sPTB, who underwent qfFN testing at 18–21 + 6 weeks. 327 women underwent later testing at 22–26 + 6 weeks (acting as their own controls). The end-points were sPTB/preterm premature rupture of membranes and delivery before 30, 34 and 37 weeks gestation and within 8 weeks of testing.
Results Early qfFN predicted delivery within 8 weeks of testing, <30, <34 and <37 weeks with receiver operating characteristics (ROC) areas of 0.66 (0.54–0.80, p < 0.05), 0.68 (0.56–0.79, p < 0.01), 0.68 (0.58–0.78 p < 0.001) and 0.64 (0.57–0.72, p < 0.001). 22-week test prediction was ROC areas of 0.77 (0.63–0.91 p < 0.001), 0.78 (0.61–0.95, p < 0.001) and 0.79 (0.70–0.89, p < 0.001) respectively. A qFFN result of <10 ng/ml at earlier gestations had only 1%, 2% and 4.3% of women delivered within 8 weeks, <30 and <34 weeks gestation, rising to 6.7%, 8.1% and 14.1% with values between 10–49.9 ng/ml (all differences statistically significant, p = 0.03, 0.02, 0.004 by Fishers-Exact). The 22-week test had 1.0%, 1.0% and 2% respectively, rising to 6.7%, 3.3% and 14% with values between 10–49.9 ng/ml (p = 0.02, 0.23, 0.004).
Conclusion qfFN is valid for screening for sPTB at 18 weeks, but has inferior predictive value to 22 weeks. Early identification may enable earlier targeted management. A threshold of <10 ng/ml is more appropriate than current practise to define low risk at 18 weeks.