

The relative risks of fetal and infant death associated with pre-gestational diabetes were 4.54 (95%CI: 3.41–6.05, $p < 0.0001$) and 1.82 (95%CI: 0.98–3.38, $p = 0.06$) respectively. The odds of a fetal or infant death increased by 19% (OR = 1.19, 95%CI: 1.02–1.39, $p = 0.02$) and 42% (OR = 1.42, 95%CI: 1.09–1.85, $p = 0.01$) respectively for each percentage increase in peri-conception HbA1c, although third trimester HbA1c was a stronger predictor of late fetal death (OR = 1.67, 95%CI: 1.25–2.24, $p = 0.001$).

Conclusions Pre-gestational diabetes is associated with a substantially increased risk of fetal death in normally-formed offspring. The effect is largely moderated by glycaemic control, with increasing HbA1c conferring higher risks of both fetal and infant death.

PP.18 CAESAREAN SECTION AND TIME TO NEXT BIRTH, ECTOPIC PREGNANCY, MISCARRIAGE OR STILLBIRTH-A DANISH REGISTER-BASED STUDY

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¹SM O'Neill, ²E Agerbo, ³LC Kenny, ⁴TB Henriksen, ⁵PM Kearney, ¹RA Greene, ³PB Mortensen, ¹JE Lutomski, AS Khashan, ²S Meaney. ¹National Perinatal Epidemiology Centre, University College Cork, Cork, Ireland; ²Anu Research Centre, University College Cork, Cork, Ireland; ³National Centre for Register-based Research, Aarhus University, Aarhus, Denmark; ⁴Perinatal Epidemiological Research Unit, Aarhus University Hospital, Aarhus, Denmark; ⁵Department of Epidemiology and Public Health, University College Cork, Cork, Ireland

Aim Estimate time to next birth, risk of miscarriage, ectopic pregnancy or stillbirth in women with primary Caesareans.

Methods Danish population-registry cohort of births from 1982–2010 ($n = 833,162$). Analysis using Cox-regression models.

Results Prior Caesarean group had longer birth intervals. No increased risk of ectopic pregnancy or miscarriage, but significantly increased risk of stillbirth among women with a prior Caesarean.

Conclusion Prior Caesareans were associated with an increased birth interval and increased risk of stillbirth compared to vaginal deliveries.

Abstract PP.18 Table

	Birth Interval	Ectopic	Miscarriage	Stillbirth
Delivery	adj.HR (95% CI)			
Vaginal	1			
Instrumental	1.08(1.07,1.09)	0.91(0.86,0.96)	1.03(1.01,1.05)	0.95(0.84,1.08)
Elective CS	0.83(0.82,0.84)	1.02(0.95,1.09)	0.92(0.90,0.95)	1.10(0.94,1.30)
Acute CS	0.89(0.88,0.90)	1.03(0.99,1.0)	0.98(0.96,1.00)	1.16(1.04,1.28)
MRCS	0.64(0.60,0.69)	1.04(0.69,1.57)	0.78(0.66,.092)	0.54(0.13,2.18)

Instrumental: vacuum/forceps; CS:Caesarean-section; MRCS: Maternally-Requested CS

PP.19 WITHDRAWN BY AUTHOR

PP.20 THE POTENTIAL OF GENERAL PRACTISE DATA FOR CONGENITAL ANOMALY RESEARCH

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R Sokal, K Fleming, LT Tata. University of Nottingham, Nottingham, UK

Background General practise data provide large population-based cohorts of individuals with prospectively collected medical information with promising potential for studying the causes and consequences of congenital anomalies. We sought to validate these data through comparison with congenital anomaly registries.

Methods Our study population was 794,209 children in The Health Improvement Network (THIN) primary care database, born between 1990 and 2009 with a median follow-up of 6.7 years. We

compared the birth prevalence of any major and system-specific congenital anomalies with the European Surveillance of Congenital Anomalies (EUROCAT) United Kingdom registries.

Results The birth prevalence of any major congenital anomaly for children in THIN diagnosed before one year of age was 198 per 10,000 (95% CI 195 – 201) which was slightly higher than the EUROCAT prevalence of 167 per 10,000 (Relative Risk 1.18, 95% Confidence Interval 1.16 – 1.20). Absolute differences in prevalence between THIN and EUROCAT were small across 16 system-specific anomaly groups. The majority of children in THIN with major congenital anomalies had recorded diagnoses before 1 year of age (72%), but including children diagnosed at any age increased the overall prevalence to 277 per 10,000 births.

Conclusions The prevalence of congenital anomalies in THIN was consistent with EUROCAT for early diagnoses, demonstrating THIN to be a valid source for investigating congenital anomalies. Age of diagnosis is an important factor in explaining a higher overall prevalence in THIN; the inclusion of diagnoses made after one year of age substantially improves capture of diagnoses making THIN more complete than registry data.

PP.21 THE EFFECT OF FACTORS OF SOCIAL EXCLUSION ON ACCESS TO ANTENATAL CARE AND THE SUBSEQUENT IMPACT ON FETAL OUTCOMES

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EM Mercer, DOC Anumba. University of Sheffield, Sheffield, UK

Background Delayed access to antenatal care is linked to maternal deaths and morbidity. Social deprivation also accounts for much maternal and child ill-health, with national health data showing discrepancies in the access and utilisation of care by groups of women who differ by ethnicity, age and socioeconomic status.

Objectives To map the prevalence of social deprivation and delayed access to antenatal care amongst women attending a regional referral maternity service and to correlate with fetal outcomes.

Methods Retrospectively analysed data collected from 59,847 singleton births at the Jessop Wing Hospital, Sheffield, UK, between 2002 and 2010, identifying maternal demographic features and neonatal outcomes. We plotted the Index of Multiple Deprivation (IMD) scores of women against the distribution of delayed access to antenatal care.

Results The geographic distribution of high deprivation scores and first pregnancy care attendance after 20 weeks gestation matched closely. High IMD scores increased the risk of being a late booker (OR: 1.092, 95% CI: 1.01–1.18, $p = 0.031$) and being of minority ethnic extraction (OR: 5.6, 95% CI: 5.2–5.9, $p < 0.001$), and significantly predicted low birth weight (OR: 1.66, 95% CI: 1.31–2.12, $p < 0.001$), premature delivery (OR: 1.34, 95% CI: 1.06–1.70, $p = 0.017$) and stillbirth (OR: 2.25, 95% CI: 1.68–3.01, $p < 0.001$). When sociodemographic variables were adjusted for, late booking did not independently predict adverse maternal or fetal outcomes.

Conclusions Disparities remain for women from certain backgrounds. Geographic mapping of high deprivation scores can direct research and health delivery strategies seeking to promote better access to pregnancy care and mitigate the resulting adverse fetal outcomes.

PP.22 ANTEPARTUM HAEMORRHAGE OF UNKNOWN ORIGIN: SHOULD WE BE WORRIED?

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S Bhattacharya, S Bhandari, EA Raja. University of Aberdeen, Aberdeen, UK

Introduction There is some controversy in the literature regarding the outcomes of pregnancies complicated by antepartum bleeding of unknown origin (ABUO).

Objective To explore the risk of adverse maternal and perinatal outcomes in women with ABUO occurring after the first trimester of pregnancy.

Methods Cohort study based on data extracted from the Aberdeen Maternity and Neonatal Databank. The study population was all primigravidae delivering in Aberdeen Maternity Hospital between 1976 and 2010. Exposure was antepartum haemorrhage occurring after the first trimester not attributable to placenta praevia or abruption. Data were analysed using univariate and multivariate statistical methods.

Results Between 1976 and 2010, there were 7,517 women with ABUO and 68,423 women without. Women with ABUO were more likely to be smokers, belong to lower social class and have slightly higher body mass index. Multivariate analysis revealed that non-specific APH was a significant risk factor for induced labour (OR = 1.23, 95% CI = 1.16, 1.31), preterm delivery (OR = 2.30, 95% CI = 2.11, 2.50), postpartum haemorrhage (OR = 1.15, 95% CI = 1.06, 1.25), Apgar score less than 7 at 1 minute (OR = 1.12, 95% CI = 1.05, 1.21), and at 5 minutes (OR = 1.25, 95% CI = 1.04, 1.50). There was no significant association detected with preeclampsia, mode of delivery or perinatal death.

Conclusion Pregnancies complicated by ABUO are at greater risk of delivery related and neonatal adverse outcomes attributable to preterm birth, some of which is iatrogenic.

PP23

MEASUREMENTS OF AMNIOTIC FLUID: ASSOCIATION AND PREDICTION OF SMALL FOR GESTATIONAL AGE AND COMPROMISE OF FETAL WELLBEING: A SYSTEMATIC REVIEW AND META-ANALYSIS

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^{1,2}RK Morris, ^{2,3}CH Meller, ^{1,4}JA Tamblin, ⁵GM Malin, ⁸RD Riley, ^{1,2,8}MD Kilby, ⁶SC Robson, ⁷KS Khan. ¹Division of Reproduction, Genes and Development, University of Birmingham, Birmingham, UK; ²Fetal Medicine Centre, Birmingham Women's Hospital, Birmingham, UK; ³Obstetrics Division, Hospital Italiano de Buenos Aires, Buenos Aires, Argentina; ⁴University Hospital North Staffordshire, Stoke-On-Trent, UK; ⁵School of Clinical Sciences, University of Nottingham, Nottingham, UK; ⁶Institute of Cellular Medicine, Newcastle University, Newcastle, UK; ⁷Women's Health Research Unit, The Blizard Institute, Barts and The London School of Medicine, Queen Mary, University of London, UK; ⁸School of Health and Population Sciences, University of Birmingham, Birmingham, UK

Objective Evaluate the strength of association and predictive value of measurements of amniotic fluid volume (AFV) for small for gestational age and compromise of fetal wellbeing.

Design Systematic literature review with random effects meta-analysis to compute summary odds ratios (OR) to assess prognostic association and assess predictive ability with sensitivity, specificity and likelihood ratios. Study characteristics, design, methodological and reporting quality were objectively assessed.

Data Sources and Eligibility Systematic search (inception to October 2011) for studies comparing AFV measures and outcomes of fetal size or wellbeing.

Results 43 studies reporting 244,493 fetuses included. Strong associations between oligohydramnios (heterogenic definition) and birth weight < 10th centile [OR 6.31 (4.15–9.58)] in a high risk population (6 studies, 28510 fetuses), and mortality [Neonatal death OR 8.72 (2.43–31.26) 6 studies, 55735 fetuses, and perinatal mortality in a high risk population OR 11.54 (4.05–32.9) 2 studies, 27891 fetuses] were identified. There was no significant association between oligohydramnios and abnormal cord pH or adverse perinatal outcome.

There was no significant association between polyhydramnios (heterogenic definitions) and poor fetal growth [Birth weight < 10th centile OR 0.37 (0.07–1.95)]. A strong association between polyhydramnios (maximum pool depth > 8 cm or amniotic fluid index ≥ 25 cm) and birth weight > 90th centile [OR 11.41 (7.09–18.36) 1 study, 3960 fetuses] was found. Despite strong associations predictive ability was poor with significant heterogeneity despite subgroup analysis.

Conclusion Oligohydramnios is associated with poor fetal growth and mortality. Polyhydramnios is associated with BW > 90th centile. Despite strong associations, overall predictive ability was poor. MPD accuracy was slightly improved over AFI and is the recommended technique.

PP24

PLACENTAL VOLUME CAN BE ACCURATELY MEASURED USING TWO- AND THREE-DIMENSIONAL ULTRASOUND NEAR TERM

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^{1,2}LE Higgins, ¹CP Sibley, ^{1,2}AEP Heazell, ^{1,2}ED Johnstone. ¹Maternal and Fetal Health Research Centre, University of Manchester, Manchester, UK; ²St. Mary's Hospital, Central Manchester University Hospitals NHS Trust, Manchester, UK

Introduction Stillbirth and fetal growth restriction are associated with lower placental weights compared to live, appropriately grown infants. Sonographic measures of placental size have been used to predict later pregnancy complications but have not been related back to true placental size. We aimed to validate measures of placental size in the third trimester of pregnancy.

Methods Ultrasonographic placental examination was performed in 30 singleton pregnancies of 35–42 weeks' gestation within seven days of delivery. Placental length, width and depth were measured using two-dimensional (2D) ultrasound, placental volume was estimated by a novel elliptical model, Kliman placental gas gauge and two three-dimensional (3D) ultrasound techniques (rotational (VOCAL) and slicing methods). Following delivery, the placenta was measured, weighed and volume determined. Sonographic and true placental measures were compared using linear regression.

Results Elliptical (but not Kliman placental gas gauge) 2D and all 3D ultrasound estimates of placental volume each related significantly with true placental volume with similar accuracy (Table 1) but not to placental weight ($p > 0.05$). VOCAL demonstrated higher accuracy than the elliptical model at the smallest placental volumes.

Abstract PP24 Table 1

		r ²	p
Ellipse		0.27	0.0033
Kliman placental gas gauge		0.054	0.21
VOCAL	30°	0.31	0.0018
	15°	0.67	0.0042
Slicing	10 mm	0.24	0.0064
	5 mm	0.29	0.0025

Conclusion True placental volume can be accurately predicted using 2D and 3D ultrasound in the third trimester. 3D ultrasound may improve detection of the abnormally small placenta. Further research is required to establish whether this measurement can predict poor pregnancy outcomes related to placental disease.

PP25

INTERPREGNANCY CHANGES IN MATERNAL WEIGHT AND BODY MASS INDEX

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DA Crosby, M Collins, V O'Dwyer, A O'Higgins, N Farah, MJ Turner. Coombe Women and Infant's University Hospital, Dublin, Ireland