pregnancy. 29.3% of pregnant women both smoked and drank before pregnancy reducing to 15.1% during pregnancy. Adjusted analysis showed that birth weight was negatively associated with continual smoking, −231 g (95% CI −318.3 to −144.5), whilst quitting or decreasing smoking was associated with −68.5 g reduction (95% CI −119.7 to −17.4) compared to nonsmokers. No association with birth weight was observed for alcohol consumption (−0.16 g, 95% CI −69.9 to 69.6).

Conclusions Timing of quit smoking interventions should concentrate on the pre-pregnancy period to ensure optimal benefits on birth weight. These results suggest that smoking cessation advice provided in the ante natal period may have limited benefit.

| P14 | INTERVENTIONS TO INCREASE THE EARLY INITIATION OF ANTENATAL CARE IN SOCIALLY DISADVANTAGED AND VULNERABLE WOMEN: A SYSTEMATIC REVIEW |

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Objective To systematically evaluate the effectiveness of interventions to increase the early initiation of comprehensive antenatal care in socially disadvantaged and vulnerable women.

Design Systematic review.

Data Sources Major bibliographic databases (Medline, Cinahl, Embase, PsycINFO, HMIC, CENTRAL) and other online libraries and resources were searched to identify relevant English language journal articles published 1990−2009. We included comparative studies (experimental or observational) evaluating the effectiveness of an intervention on the proportion of women initiating antenatal care by any defined cut-off point ≤20 weeks in a disadvantaged or vulnerable population. In order to focus on interventions relevant in the context of the UK National Health Service, we excluded studies from low-income countries and those relating to financial interventions such as extension of health insurance coverage or similar.

Review Methods Two reviewers independently extracted data for eligible studies; assessed internal validity using the GATE checklist and considered whether the studies provided evidence of a beneficial effect.

Results Over 3000 citations were screened. Sixteen eligible studies were identified; 14 conducted in the USA, one in Australia and one in the UK. All were observational evaluations. Twelve studies evaluated interventions targeted at specific disadvantaged or vulnerable subgroups of the population (predominantly ethnic minority women or teenagers); the remaining studies evaluated interventions in more generally socioeconomically disadvantaged populations. Eleven studies evaluated interventions that involved outreach or other community-based services, and five evaluated interventions that involved alternative models of clinic-based antenatal care. Overall, the quality of evidence was poor. Only one study, which evaluated a US home visiting intervention delivered by paraprofessional women to pregnant adolescents, was considered to have adequate internal validity. The reviewers considered the evidence relating to this intervention to be inconclusive but consistent with a possible beneficial effect of the intervention on timing of initiation of antenatal care.

Conclusion We found insufficient evidence of adequate quality to reliably conclude that any of the interventions considered were effective at increasing the early initiation of antenatal care in socially disadvantaged and vulnerable women. There was weak evidence of effectiveness relating to one intervention based on home visiting for pregnant adolescents. Findings were inconclusive for all other included interventions, although we identified several strategies that might warrant further consideration and possibly more

robust evaluation. The results of this review highlight the paucity of evidence and the need for further high quality research to ensure that future service innovations are evidence based.

| P15 | EFFECT OF TRAINING DOCTORS IN COMMUNICATION SKILLS ON SYRIAN WOMEN'S SATISFACTION DURING LABOUR: A STEPPED WEDGE CLUSTER RANDOMISE TRIAL |

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Objective To test the effect of training residents in interpersonal and communication skills on women's satisfaction with patient−doctor relationship in labour and delivery rooms.

Design A stepped-wedge cluster randomised trial.

Setting Maternity wards in four teaching hospitals in Damascus and homes of participating women.

Participants Women delivering in the hospitals under study, via vaginal delivery with living baby, who consent to participate in the study. Difficult labour and high-risk pregnancies are excluded. Residents working in the study hospitals during the implementation phase who agree to take part in the study.

Main Outcome Measure Women's satisfaction with interpersonal relationships in labour and delivery rooms measured via a series of questions on a Likert scale and based on the Medical Interview Satisfaction Scale.

Results Women were on average 25 years old, 95% were homemakers, 76% had primary education, 48% lived in shared accommodation and 26% were nulliparous. At the individual level, the mean score of overall satisfaction of women was 68.66 (SD=14.24) out of a possible score of a 100 in the control group and 70.79 (SD=13) in the treatment group. At the hospital level, the mean scores of overall satisfaction of women were 70 (SD=4.70) and 70.99 (SD=4.85) for the control and treatment group, respectively. Using (generalised) linear mixed models approach to account for the study design, we were not able to detect a difference between the treatment and control group on the overall satisfaction of women.

Conclusion The training package does not seem to be associated with higher overall satisfaction scores.

| P16 | QUANTIFYING THE RISK OF DEPRIVATION ON PRETERM BIRTH IN UK MATERNITY UNITS |

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Objective To explore risk factors for preterm birth (PTB) between 24 +0 and 34+0 gestational weeks in the UK's largest maternity unit, with a particular focus on low risk pregnancies and the effect of socioeconomic status.

Design Retrospective cohort study of routinely collected obstetric and neonatal data.

Setting 50 486 singleton pregnancies booked at the Liverpool Women's NHS Foundation Trust for all women delivering after 24 +0 weeks gestation over a 7-year period from 2002 to to 2008.

Main Outcome Measure The primary outcome was preterm birth. Pregnancies were stratified into three groups: low risk; those complicated by medical problems; pregnancies in women with a

history of preterm delivery. Multiple logistic regression and generalised additive models were used to explore the effect of covariates including area deprivation, smoking status, BMI, parity and ethnicity.

Results The proportion of PTB was significantly different in the three groups: 1.35% (95% CI 1.24 to 1.47, n=38 994) in the low risk group, compared to 6.55% (CI 6.09 to 7.03, n=10 760) in the medical disorder group and 9.2% (CI 7.39 to 11.61, n=732) in the previous preterm group. 64% of the women delivering at LWH were in the most deprived quintile relative to the English population. The unadjusted odds of preterm delivery in the most deprived quintile compared to the least was 1.60 (CI 1.28 to 2.00) in the uncomplicated group. In a multiple regression model, ever having smoked (OR 1.68 CI 1.35 to 2.08), underweight (OR 1.65 CI 1.005 to 2.56) and highest quintile of area deprivation (OR 1.59 CI 1.19 to 2.11) were associated with increased the risk of PTB. Being overweight decreased the risk of PTB (OR 0.76 CI 0.59 to 0.97). In the medical disorders group, age (OR 1.02 CI 1.011 to 1.04), highest quintile of area deprivation (OR 1.46 CI 1.14 to 1.88), underweight (OR 1.68 CI 1.09 to 2.51), ever having smoked (OR 1.19 CI 1.00 to 1.44), nulliparity (OR 1.37 CI 1.13 to 1.66) and black ethnic group (OR 1.61 CI 1.00 to 2.48) were associated with PTB.

Conclusions Preterm delivery contributes to inequalities in infant mortality. In a cohort of women with no identifiable risk factors for PTB at booking, deprivation of area of residence is associated with higher risk of PTB, even with adjustment for smoking and underweight, which are also important independent risk factors. Deprivation of area of residence needs to be considered when comparing obstetric outcomes in units around the UK.

P17 | **BIRTH SIZE DIFFERENCES BETWEEN WHITE AND PAKISTANI ORIGIN INFANTS BY GENERATION: RESULTS FROM THE BORN IN BRADFORD COHORT STUDY**

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Background Previous studies have shown marked differences in birth weight between babies born in the UK of South Asian origin and those of UK origin. Whether such differences persist across generations in contemporary populations, the mechanisms underlying them and the extent to which other dimensions of birth size vary between these two groups is unclear.

Objective To describe differences in term birth weight, head, arm and abdominal circumference and skinfolds between Pakistani origin and white British origin infants and to investigate whether the magnitude of any differences reduces depending on whether the parents and grandparents of Pakistani infants are born in the UK or Pakistan.

Design Birth cohort study (born in Bradford (BiB)).

Setting Bradford, UK.

Participants 1838 white British and 2222 Pakistani mothers recruited to BiB who completed a questionnaire at 26 weeks gestation and their babies born between September 2007 and November 2009.

Main Outcome Measures Birth weight, head, arm and abdominal circumference and skinfolds.

Results Pakistani babies were lighter (mean difference 227.6 g, 95% CI 198.3 to 256.8), had smaller head, arm and abdominal circumferences (mean differences 0.43 cm, 95% CI 0.30 to 0.56; 0.22 cm, 95% CI 0.10 to 0.34; 1.25 cm, 95% CI 1.02 to 1.39, respectively) and smaller subscapular and triceps skinfold thickness (mean differences 0.22 mm, 95% CI 0.12 to 0.32 and 0.21 mm, 95% CI 0.13 to 0.29) than white British infants. Differences remained significant following adjustment for deprivation. Mean birth weight was highest in Pakistani infants when both parents were born in Pakistan (3206 g) and was lowest when both parents were UK born (3165 g).

Conclusions These results reaffirm that significant differences in birth size exist between white British and Pakistani origin infants in the UK. Despite the assumption that differences will reduce over successive generations, mean birth weight has not increased in infants of UK born Pakistani origin parents compared with infants of Pakistani born parents. This suggests that differences may be genetically determined or are affected by epigenetic or persisting behaviour characteristics. Further analysis will include adjustment for additional socioeconomic variables, other maternal and family characteristics and birthplace of maternal and paternal grandparents.

P18 | **CHILD MALTREATMENT CO-OCCURRENCE AND ASSOCIATIONS WITH HOUSEHOLD DYSFUNCTION: EVIDENCE FROM THE 1958 BRITISH BIRTH COHORT**

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Background Child maltreatment has been associated with adverse health outcomes, including risk of mental health problems and cardiovascular disease. Little is known about how different forms of maltreatment co-occur and whether different patterns are associated with household dysfunction. Delineation of co-occurrence is important to establish in order that long-term health outcomes can be better identified and understood.

Objective To investigate (1) to what extent specific maltreatment subtypes co-occur in a British birth cohort and (2) how these patterns were associated with household dysfunction.

Design Longitudinal survey; the 1958 British birth cohort.

Setting England, Scotland and Wales.

Participants Individuals born during 1 week in March 1958. At age 45 y, 78% of the remaining cohort (11 971) completed questions on childhood experiences.

Outcomes Child maltreatment before age 16, including psychological, physical and sexual abuse and witnessing intimate partner violence, collected at age 45 y. Eleven indicators of parental neglectful behaviour, collected at 7, 11, 16 and 45 y, were aggregated to derive a cumulative neglect score. Information on household dysfunction (eg, parental mental health, alcohol/drug misuse, poverty) was collected during childhood and at 45 y. OR presented were adjusted for sex and social class at birth.

Results Psychological abuse (10.0%) was the most commonly reported maltreatment, followed by physical abuse (6.1%), witnessing abuse (6.0%) and sexual abuse (1.6%); 24% had a neglect score ≥3. 14% of participants experienced any one subtype of abuse. Of these, almost two thirds (64%) experienced further abuse subtypes and/or had a neglect score ≥3. Witnessing or experiencing abuse increased odds of reporting another maltreatment, for example, psychological and physical abuse OR 37.9 (95% CI 30.8 to 46.5). The odds of reporting any abuse increased with neglect score; for example, for sexual abuse OR ranged from 1.5 (0.9 to 2.6) to 4.5 (2.5 to 8.1). Common household dysfunction variables (eg, conflict and physical punishment) were strong predictors for all abuse subtypes. Other dysfunction measures most strongly associated with maltreatment differed, for example, odds of psychological abuse were increased in association with mother/father with