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Background Spontaneous miscarriage (the death of a fetus before 20 weeks of pregnancy), occurs in 10–15% of recognised pregnancies. Stillbirth (the death of a fetus after 24 weeks of pregnancy), occurs in approximately one in every 200 deliveries. The cause of miscarriage and stillbirth is frequently unknown. However, there is some evidence to suggest that previous Caesarean delivery may be a risk factor.

Objective: to compare the risk of fetal death in subsequent pregnancy by mode of delivery.

Methods This was a systematic review of relevant studies identified through CINAHL, the Cochrane library, Embase, Medline, PubMed, SCOPUS and Web of Knowledge (1945–November 2011), using a comprehensive search strategy, and cross-checking of reference lists. Study selection: cohort and case-control studies reporting on Caesarean delivery and spontaneous miscarriage or stillbirth. Two reviewers independently assessed titles, abstracts, and full articles to identify eligible studies, using a standardised data collection form.

Results *Miscarriage:* From 6,857 titles identified, eight articles were included, totalling 147,017 women and 12,682 events. Odds ratios (ORs) were combined using a fixed-effect model to estimate the overall association using Review Manager Software. From the meta-analysis, the pooled OR estimate of miscarriage among women who previously delivered by Caesarean versus vaginally, was 1.11 [95% CI 1.06, 1.17]. The OR of miscarriage was 1.26 [95% CI 0.54, 2.92] for one case-control study, 1.11 [95% CI 1.06, 1.17] for seven cohort studies and 1.11 [95% CI 1.06, 1.17] for primiparous women (eight studies).

Stillbirth: From 6,857 studies identified, seven articles were included, totalling 1,661,335 pregnancies and 5,741 events. ORs were combined using a random effect model (due to the heterogeneity of included studies) to estimate the overall association. From the meta-analysis, the pooled OR estimate of stillbirth among women who previously delivered by Caesarean versus vaginally, was 1.32 [95% CI 1.11, 1.57]. The OR of stillbirth was 1.30 [95% CI 1.03, 1.64] for primiparous women (five studies), 1.40 [95% CI 1.24, 1.59] for multiparous women (two studies), 1.80 [95% CI 1.27, 2.55] for studies including all stillbirths (five studies) and, 1.20 [95% CI 1.02, 1.42] for studies including only unexplained antepartum stillbirths (three studies).

Conclusion Caesarean delivery compared to vaginal delivery is associated with an increased risk of spontaneous miscarriage by 11% and stillbirth by 32% in subsequent pregnancies. In light of the recently published National Institute for Health and Clinical Excellence (NICE) guidelines, which support a woman's right to request a Caesarean delivery without medical reason, there is an urgent need to establish whether mode of delivery has a causal effect on risk of fetal death.

OP46

THE ASSOCIATION BETWEEN PRIVATE PATIENT STATUS AND CAESAREAN DELIVERY: A RETROSPECTIVE COHORT STUDY OF 403,642 CHILDBIRTH HOSPITALISATIONS

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Background The increase in Caesarean delivery rates over the past decades has resulted in it becoming one of the most commonly performed in-hospital surgical procedures. While many Caesarean deliveries are clinically indicated, other factors, such as medico-legal fears and maternal and health professional preferences, contribute

to the decision-making process. To explore non-clinical factors, we investigated differences in Caesarean delivery rates and temporal trends by private and public patient status while giving consideration to patient case-mix.

Methods A retrospective cohort study was performed on childbirth hospitalisations occurring between 2005 and 2010 in the Republic of Ireland. Procedural ICD-10-AM codes from hospital discharge records were used to identify emergency and elective Caesarean deliveries. Temporal trends in Caesarean delivery were determined using a Cochrane-Armitage test for trend. Multivariate multinomial regression analysis was used to determine the odds of Caesarean delivery (emergency or elective versus vaginal delivery) by mother's public or private status while adjusting for age, multiple gestation, previous Caesarean delivery, induction of labour, maternal morbidity and other obstetric complications.

Results 403,642 childbirth hospitalisations reviewed; approximately one-third of women (30.2%) were booked privately. Women booked privately were more likely to be at least 30 years of age or older, married and have had a previous Caesarean delivery. Over the study period, the overall Caesarean rate increased from 22.2% to 23.8% among women booked publicly versus 30.2% to 34.7% among women booked privately (test for trend p -value <0.0001). While the emergency Caesarean rate was similar between both groups of women (14.3% versus 13.3% respectively), women booked privately were almost twice as likely to have an elective Caesarean delivery (17.8% versus 9.4%). After adjustment, women booked privately had an increased odds of both emergency (adjusted OR: 1.32; 95% CI 1.29, 1.35) and elective (adjusted OR: 1.88; 95% CI 1.83, 1.93) Caesarean delivery.

Conclusion Irrespective of obstetric risk factors, women who opted for private maternity care were significantly more likely to have a Caesarean delivery than women booked publicly. Moreover, while increasing trends in Caesarean delivery were observed among all women, the increase was disproportionately higher among women booked privately. These findings suggest that significant differences in Caesarean rates are unlikely to be explained by differences in clinical risk factors. Mixed-method research is clearly warranted to explore disparities in Caesarean delivery rates. Such research should focus on clinical decision making and the role of personal preferences of women and maternity care professionals in decisions regarding mode of birth.

OP47

EFFECT OF HIGH PROFILE QUALITY FAILURES ON PATIENT NUMBERS IN THE ENGLISH NHS

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Background Policy architects are keen to emphasise that releasing information on the quality of hospitals into the public domain will drive patients away from poor quality providers and thus motivate system wide improvements. However, previous evidence on the impact of releasing quality information to the public have been mixed, with various reasons being proposed as possible barriers, including patients being unaware of the information available, being unable to understand it, or feeling it to be irrelevant. We examined three cases of high profile reports into failings in quality and safety at English NHS hospitals in order to assess whether this negative publicity was associated with a decrease in patient numbers. These reports all garnered significant media attention and presented a stark picture of performance and so we hypothesise that such negative coverage may have induced a fall in patient numbers.

Methods We analysed trends in admission for nonemergency admissions with a difference-in-difference approach, using four separate comparison groups: (1) matched on previous hospital

numbers; (2) the five closest hospitals geographically; (3) hospitals in the same administrative area; (4) a national comparison group. We also employed waiting time as an instrumental variable to account for possible effects on waiting times on patient numbers. We used three outcomes: overnight admissions; day-case admissions; and patients not attending for their booked appointments, and used a model segmented into three month periods after report publication in order to examine the range of short and longer term effects.

Results Two out of three of the hospitals we examined showed no difference in patient numbers at any point in the 12 months after negative reports were published. One of the hospitals showed a reduction in overnight patients for 3 months (-12% , $p=0.003$) and 6 months (-14% , $p<0.001$) after report publication, but patient levels returned to normal after this. Additional examination of patient numbers in advance of these reports coming out also did not change these results.

Conclusion The publication and dissemination of highly critical reports by a health care regulator does not appear to have resulted in patients' sustained avoidance of the hospitals involved. We only found an impact in one of the three hospitals we examined, and this only persisted for 6 months. This reminds us that simplistic assumptions regarding the power of information to drive patient numbers are unrealistic, and that reliance on these alone to drive quality improvement may be misguided.

OP48 INCREASED MORTALITY ASSOCIATED WITH WEEKEND ADMISSION: A RESULT OF HIGHER SEVERITY OF ILLNESS AT THE TIME OF ADMISSION?

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Background A number of studies have shown that weekend admissions to hospital are associated with significantly higher mortality compared with weekday admissions. Previous studies have suggested that the observed variability in weekend-weekday mortality is a consequence of the quality of care provided in hospital. However, little information exists on whether the increased mortality associated with weekend admission is explained by the relative severity of illness at the time of admission.

Methods We performed a retrospective analysis of all emergency acute care admissions in England between April 2009 and March 2010 using Hospital Episode Statistics data. In-hospital mortality among patients who were admitted as emergency admission on weekends as compared to weekdays was analysed using the following measures: (1) overall deaths in hospital; (2) deaths in hospital within and after 3 days of admission (3) deaths in hospital among patients with 'higher risk' conditions and 'lower risk' conditions. The 'higher risk' conditions consisted of 103 Primary Diagnosis codes (ICD-10), which accounted for the 74% of in-hospital deaths in the UK. The remaining Primary Diagnosis codes were categorised as 'lower risk' conditions.

Results There were 10,221,500 emergency hospital admissions during the two-year study period; 23.8% of the patients were admitted on weekends. A total of 391,938 patients died in hospital; a quarter of these died within 3 days of admission. Admission on weekends was associated with significantly higher in-hospital deaths as compared to weekday admission (Odds Ratio 1.11, 95% CI 1.10–1.12). Mortality within 3 days of admission (early deaths) was also higher for patients admitted on weekends (OR 1.16, 95% CI 1.14–1.17) and this difference persisted for both 'higher risk' and 'lower risk' conditions. However, when early deaths were excluded

from the analysis, mortality was not affected by weekend admission.

Conclusion Higher mortality was seen among patients admitted on weekends compared to those admitted on weekdays. However, as the odds ratio for deaths after 3 days of admission was not affected by day of admission, it is probable that the weekend admission effect on mortality is at least in part due to higher severity of illness at the time of admission rather than purely being a consequence of poorer quality of in hospital care at the weekend, and this warrants further investigation.

Thursday 13 September 2012

Parallel Session C

Socioeconomic Inequalities III

OP49 SOCIOECONOMIC STATUS AND LATE ADOLESCENT TRAJECTORIES OF SMOKING, DRINKING, AND PSYCHIATRIC DISTRESS

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Background Problems with smoking, alcohol use and psychiatric distress usually develop in adolescence and often co-occur. These problems may be inter-related but their co-occurrence could result from a common cause such as socioeconomic disadvantage.

Methods The Twenty-07 Study includes self-reported data on smoking, alcohol use and psychiatric symptoms (GHQ-12) from 1,515 adolescents at approximate ages of 15 (baseline), 16 and 18. Latent class analysis ($n=1238$ with valid data) was used to identify distinct patterns of late adolescent development in smoking, alcohol use and psychiatric distress and relate these to various indicators of socioeconomic status (leaving school at 16, baseline area deprivation, and baseline parental measures of social class, education, housing tenure, income, employment status and family structure) whilst adjusting for gender.

Results Four latent classes were identified: 1) a low-risk class with low levels of smoking at all ages, low early drinking, moving towards regular drinking at age 18, and low levels of psychiatric symptoms; 2) a class with similar patterns for smoking and drinking but with high levels of psychiatric distress; 3) a class which engaged with alcohol earlier, many of whom were heavy drinkers by age 18, and had medium levels of distress; and 4) a high-risk class who engaged early with both smoking and drinking, most of whom were heavy smokers by age 18, and had medium and increasing levels of distress. In unadjusted analyses most indicators of socioeconomic disadvantage were associated with raised odds of membership in the high-risk class (reference group: low-risk class). With mutual adjustment for gender and all socioeconomic variables, those leaving school at 16 (OR 6.01; 95% CI 3.93–9.17) and in rented accommodation (OR 1.74; 1.19–2.56) still had significantly raised odds of membership in the high-risk class relative to those staying in school or in owner-occupied accommodation. Rented accommodation was protective for membership in the class with drinking but not smoking problems (OR 0.51; 0.30–0.86) and those in the most deprived areas were less likely to be in the class with psychiatric distress only (OR 0.37; 0.17–0.83) than those in more affluent areas.

Conclusion Socioeconomic disadvantage is implicated as a common cause of smoking, alcohol use, and psychiatric distress. Relationships with socioeconomic status are complex however and depend on the combination of outcomes, for example, trajectories with drinking but not smoking problems and those with psychiatric