



# BREAKOUT 6

**HEALTH CONDITIONS, RISK FACTORS AND PREGNANCY OUTCOMES**

***Moderators:***

*Florin Stamatian – Romania*

*Joseph Mulinare – USA*





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## **DIABETES AND BIRTH DEFECTS**

**Adolfo Correa**

*National Center on Birth Defects and Developmental Disabilities  
Coordinating Center for Health Promotion  
Centers for Disease Control and Prevention, Atlanta, USA*

Diabetes during pregnancy is a well established risk factor for defects of the cardiovascular, central nervous and musculoskeletal systems, but the extent to which diabetes affects other organ systems is unclear. Although good glycemic control during pregnancy has been shown to reduce the risk for birth defects, the extent to which diabetes continues to contribute to the burden of birth defects is unclear. This presentation will provide an overview of reports of associations of diabetes with birth defects, review evidence on the effectiveness of preconception care in preventing birth defects among offspring to women with diabetes, summarize results from a recent analysis of data from a multicenter case-control study of diabetes and birth defects, and describe some of the remaining challenges and opportunities for preventing birth defects associated with diabetes.



## **HYPERTENSION AND PREGNANCY OUTCOMES**

Attila Molvarec, Zoltan Derzsy, Janos Rigo Jr.

*1<sup>st</sup> Department of Obstetrics and Gynecology,  
Semmelweis University, Budapest, Hungary*

Hypertensive disorders, including transient hypertension, chronic hypertension, preeclampsia and superimposed preeclampsia, affect approximately 10-20% of all pregnancies and their incidence is increasing. These diseases are major causes of maternal and perinatal morbidity and mortality, even in the developed world. We review the maternal and perinatal complications of hypertensive states in pregnancy. It is important to distinguish hypertension that was present and observable before pregnancy from hypertension which developed during gestation. We report our experience with follow-up of 143 pregnant women with preexisting chronic hypertension. In this high-risk pregnancy group, adverse maternal and perinatal outcomes, such as preeclampsia, preterm delivery and intrauterine growth restriction (IUGR) occurred much more frequently than in the total population. The percentage of preterm delivery and IUGR was significantly higher in patients with superimposed preeclampsia than in those without. Hypertension in the first half of pregnancy was found to be an independent risk factor for developing superimposed preeclampsia, which emphasizes the importance of tight blood pressure control during pregnancy. In the periconceptional period, approximately one-third of chronic hypertensive patients used antihypertensive drugs that are contraindicated in pregnancy. We conclude that preconception care and close collaboration between primary care physicians, internists and obstetricians during pregnancy are essential to reduce the maternal and perinatal morbidity and mortality associated with chronic hypertension.



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## **THE PREGNANCY AND INFANT DEVELOPMENT (PRIDE) COHORT: STUDY DESIGN**

**Marleen M. H. J. van Gelder, R. Bretveld, I. A. L. M. van Rooij,  
G. A. Zielhuis, N. Roeleveld**

*Department of Epidemiology, Biostatistics and Health Technology Assessment,  
Radboud University Nijmegen Medical Centre, The Netherlands*

Little is known about the aetiology of complications and disorders in both mother and child that originate in pregnancy, such as gestational hypertension, spontaneous abortion, birth defects, and childhood cancer. Influences of genetic and environmental risk factors have been described in the literature. However, the validity of most studies is questionable since they were retrospective and suffered from serious methodological issues, including poor exposure assessment and low study power. As a consequence, for birth defects, for example, the cause is unknown in 60-70% of cases.

To assess the factors that cause complications and disorders originating in pregnancy and to subsequently identify possibilities for prevention, the PRIDE (PRegnancy and Infant DEvelopment) cohort study will be conducted in the eastern and southern parts of the Netherlands. Information on a large range of potential risk factors will be collected primarily through web-based questionnaires. If possible, blood samples from the child and both parents will be collected as well. The PRIDE cohort will be the largest pregnancy cohort in Europe, aiming to include a total of 150,000 women. These women will be recruited as early in pregnancy as possible to collect data close to the aetiological moment of birth defects and other pregnancy outcomes. In addition, the influence of preconception care and the prenatal screening program, that is offered to all pregnant women since January 2007, will be evaluated, as well as the Dutch prenatal care system itself. This system is unique in the world with still as many as 30% home deliveries.

We are currently exploring the possibilities for recruitment of the study population and different data collection scenarios for the PRIDE cohort study. Data collection is scheduled to start in the summer of 2008.



## PREDICTORS OF TIME-TO-PREGNANCY

Reini Bretveld, Sara Al Shamma, Femmie de Vegt, Iris van Rooij,  
Jan Kremer, Nel Roeleveld

*Radboud University Nijmegen Medical Centre, Epidemiology,  
Biostatistics and Health Technology Assessment, Nijmegen, The Netherlands*

**Introduction:** Fertility problems are an increasing public health issue in industrialized countries. Several lifestyle factors have been suggested to affect the reproductive system of both men and women, but it is still unknown which of these variables really influence fertility. Therefore, the aim of this study was to investigate which individual characteristics and/or lifestyle habits predict time-to-pregnancy (TTP), a measure of fertility, in a large population-based sample.

**Subjects and Methods:** We analysed data from the Nijmegen Biomedical Study, a large population-based study in the city of Nijmegen the Netherlands. In this study, data were obtained through self-administered questionnaires with questions on TTP, occupation, lifestyle habits (e.g. smoking), and individual characteristics (e.g. weight) of the respondents and their partners in the first month in which they tried to conceive their first pregnancy. Associations between these variables and TTP were studied by means of the Cox's proportional hazards model among 2083 couples.

**Results:** Preliminary results showed that a high female weight (>75 kg) was found to decrease fecundability by 17% (FR =0.83; 95% CI: 0.68-1.01) and a high male weight (>85 kg) showed the same decrease (FR =0.81; 95% CI: 0.70-0.95). In addition, men who consumed alcohol were less fecund (FR =0.84; 95% CI: 0.74-0.96), just like women who smoked (FR =0.90; 95% CI: 0.81-0.99) or had a job (FR =0.91; 95% CI: 0.81-1.01). Furthermore, women who took medication had a considerably decreased fecundability, which was reflected by a FR of 0.60 (95% CI: 0.48-0.76).

**Conclusion:** This study showed that male alcohol consumption, female smoking, use of medication, and having a job, and a high weight of both men and women were important predictors of TTP. Additional investigations should be carried out to verify these results, given their potential implications for preventive counselling of couples who are planning a pregnancy.



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**A SURVEY OF RISK FACTORS DURING PRE- AND POST-CONCEPTION PERIODS IN MOTHERS OF BABIES WITH BIRTH DEFECTS SEEN AT THE UNIVERSITY OF PORT HARCOURT TEACHING HOSPITAL, NIGERIA**

D. D. Awi, R. O. Ugwu, P. O. Fiebai, A. U. Eneh, B. Okoh, A. R. Nte, R. S. Oruamabo, Gracia Eke, V. Oputa, D. D. Datubo-Brown, B. M. Kejeh

*Institute of Maternal and Child Health, University of Port Harcourt, Port Harcourt, Nigeria*

**Objectives:** To assess the prevalence of risk factors during the pre- and post conception periods in mothers of babies with birth defects at the University of Port Harcourt Teaching Hospital.

**Method:** Data from an ongoing study on birth defects at the University of Port Harcourt Teaching Hospital were extracted for neonates seen from February 2006 to January 2008 (a period of 24 months). All neonates with visible birth defects whose parents gave consent were recruited prospectively. Sociodemographic data and information on pre-and post conception exposure of the mothers to risk factors were obtained using a semi-structured questionnaire. Each child was examined to describe the type and extent of defect(s). Data entry and analyses were carried out with Intercooled STATA 8 statistical package.

**Results:** One hundred and twenty three singleton neonates delivered to 123 mothers were recruited during the period. There were 73 (58.9%) males, 43 (34.7%) females and 7 (5.7%) with indeterminate sex. The mean gestational age of the babies was 38.4 ( $\pm$  2.5) weeks. The mean ages for the parents were 28.4 ( $\pm$  5.24) years for the mothers and 35.0 ( $\pm$ 6.08) years for the fathers.

The malformations were major in 89 (72.4%) babies and included neural tube defects in 25 babies, orofacial defects in 13 babies and musculoskeletal in 12.

Pre-conceptually, 44 (35.8%) mothers took alcohol and 9 (7.3%) local herbs, mostly alcohol-based. Post-conceptually, alcohol consumption was reported in 35 (28.5%) women and herbs in 14 (11.4%).

**Conclusion:** Alcohol consumption pre- and post-conceptually appears to be a major risk factor for the occurrence of birth defects in babies delivered to these rather young women in the Niger Delta.