

LEPTIN DURING PREGNANCY INFLUENCES MATERNAL WEIGHT GAIN, FAT ACCRUAL AND INFANT BIRTH WEIGHT. TO Scholl, TP Stein, CM Schroeder,* and M Schleuter (UMDNJ-SOM, Stratford, NJ 48101, USA).

Increases in maternal subcutaneous fat during the third trimester of pregnancy are associated with decreased infant birth weight. Paradoxically, infant birth weight is thus lower despite larger gestational weight gains by the mother. The extent to which late-pregnancy changes in maternal fat stores (measured by anthropometry) actually reflect maternal fat accrual, versus changes in tissue hydration, is uncertain. We therefore examined the influence of a biomarker - plasma leptin during the third trimester - on birthweight, weight gain and maternal fat accrual during pregnancy in women from Camden. Leptin, a polypeptide hormone, is a product of the obese gene and the first hormone found to be released by the adipocyte. Increases in its concentration during pregnancy should reflect fat accrual. After controlling for potential confounding variables an increase in leptin level between entry to care and week 28 was inversely related to birthweight (BW; -9.69 grams BW/unit increase in leptin, $p < .025$). Women with the highest leptin increases during this time interval (highest quartile) had the greatest birth weight deficit (-273 (126(SEM) grams, $p < .05$) and gestation duration (LMP) was also lower (-1.9(.75 wks, $p < .025$). At the same time, women with the highest leptin increases and greatest birth weight deficits also displayed larger measured rates of gestational weight gain (+.47 (.15 kilos/wk, $p < .005$) and increases ($p < .05$) between wk 28 and 6 wk postpartum in arm fat area (3.61(1.6 mm²), arm circumference (0.99(.31 cm) and the sum of skinfolds (4.4(1.9 mm).

ASSOCIATION OF MATERNAL AND FETAL FACTORS WITH SYSTOLIC BLOOD PRESSURE AND BODY SIZE AT 18 YEARS OF AGE: A COHORT STUDY OF 166,072 SWEDISH MALE CONSCRIPTS BORN FROM 1973 TO 1976. F Rasmussen,* M Johansson, and DA Leon (Division of Epidemiology, Institute of Environmental Medicine, Karolinska Institute, S-171 77 Stockholm, Sweden).

The inverse association between birth weight (BW) and systolic blood pressure (SBP) in adulthood is strengthened on adjustment for height and body mass index (BMI) but little attention has been paid to the associations underlying this adjustment effect. The aim is to analyse the association between BW for GA and SBP while accounting for birth length (BL), height and BMI at 18 years of age, as well as for the mother's parity, age, education, and socio-economic status. The study cohort comprised 166,072 singleton males born alive in Sweden 1973-76 with GA from 35 to 44 weeks. The study subjects were identified in the nation-wide Medical Birth Registry and followed-up in the national Military Enlistment Registry from 1990 to 1996. Z-scores were calculated for BW and BL within each individual week of gestation. In multiple linear regression models the change in SBP (mm Hg) per 1 kg increase in BW with 95% CI was -0.7 (-0.8,-0.6) without adjustment for height and BMI at 18 years of age, -1.3 (-1.5,-1.2) after adjustment for height, -0.9 (-1.0,-0.8) after adjustment for BMI, and -1.6 (-1.7,-1.5) after adjustment for height and BMI. Controlling maternal and socio-demographic factors did not change these associations. Positive associations were found between BL for GA and SBP, between BL for GA and height at age 18, and between height at age 18 and SBP. The results showed that BL had no direct on SBP, the positive association seen with SBP being entirely due to confounding with height. The inverse effects of BW on SBP are best conceived as having two components: that is GA and BW for GA (representing fetal growth rate). Both components were found to be inversely associated with SBP.

EVALUATION OF A PUBLIC HEALTH PROGRAM: SILICOSIS SURVEILLANCE AND PREVENTION IN OHIO, 1989-1995. C Geidenberger,* G Nestel, E Socie, and K Gromen (The Ohio State University, School of Public Health, Columbus, OH 43210, USA).

The Sentinel Event Notification System for Occupational Risks (SENSOR) is a cooperative state/federal program created in response to the lack of a national surveillance system for occupational conditions. An evaluation of the Ohio SENSOR silicosis program was conducted to assess the quality, completeness, and cost of this case-based surveillance (CS) and intervention program. Standard epidemiologic measures of sensitivity and positive predictive value (PPV) were determined for the system as a whole and for individual data sources. In addition, a retrospective cost analysis was undertaken to estimate average costs (AC) of reaching surveillance/intervention endpoints. Finally, a pilot hazard surveillance (HS) program was implemented to evaluate silica hazards in randomly selected work sites and to compare the cost of this intervention approach to that of identifying work sites through case-based surveillance. Based on a total case estimate from capture-recapture analysis (Am J Epi 145:S62, 1997), sensitivity was 31%. PPV was 62% and varied by data source. The estimated AC per case was \$38 overall, and was \$30, \$212, \$19, and \$7 for hospital records, physician reports, worker's compensation claims, and death certificates, respectively. To identify problem work sites, the overall AC was \$2,509/site, ranging from \$2,883/site for hospital records to \$1,017/site for HS. The relatively high AC of locating work sites through hospital records was largely due to resources devoted to follow up of hospital cases, who were older and less likely to identify existing problem work sites than cases identified from other sources. These results indicate the need for a shift from CS (using primarily hospital discharge records) to HS, to make more efficient use of public health resources devoted to silicosis prevention.

EVALUATING INTERVENTIONS AND POLICIES FOR ROBBERY PREVENTION IN A MATCHED CASE-CONTROL STUDY OF CONVENIENCE STORES. DP Landsittel,* SA Hendricks, HE Amandus, and J Malcan (National Institute for Occupational Safety and Health, Morgantown, WV, USA).

Previous research on convenience store robbery has indicated that robbers selectively choose their target from stores within some radius, based on characteristics of the store and surrounding area. In this study we proposed, and illustrated the use of a prospective matched case-control design to directly address the robber's selection of a target store in evaluating preventive interventions and policies. This approach provided an innovative, and statistically powerful design for studying the problem of convenience store robbery. Four hundred cases were selected by identifying convenience store robberies in the three largest metropolitan areas in Virginia. For each robbery, three controls were randomly selected from other convenience stores (not robbed on the same day) within a 2-mile radius. Using conditional logistic regression, and methods to adjust for correlated observations, we identified which policies and interventions were significantly associated with robbery. This study overcame many limitations of previous studies by collecting data on a wide range of variables. The advantages and limitations of this, and other methodologies are discussed.

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