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Title: Asthma in pregnancy and risk of preterm delivery

Mr. David 15117 Olsson david.olsson@envmed.umu.se¹, Dr. Lennart 15118 Bråbäck lennart.braback@lvn.se MD^{1,2} and Prof. Bertil 15119 Forsberg bertil.forsberg@envmed.umu.se¹. ¹ Public Health and Clinical Medicine, Umeå University, Umeå, Sweden, 90187 and ² Research and Development, Sundsvall Hospital, Sundsvall, Sweden .

Body: The effects of asthma on pregnancy outcomes differ between studies. A recent review indicates that the conflicting results are related to study design, where larger database studies have reported increased risks, and smaller clinical prospective cohort studies have not found significantly increased risks. We study the effect of asthma within a large study of air pollution and preterm birth; is there an increase in preterm birth and how common are exacerbations in pregnancy resulting in outpatient hospital visits? Our study cohort from Stockholm, Sweden, is constructed by matching live births 1998-2006 from the Medical Birth Registry with information on the mother from the Patient Registry (1987-2010 for hospital admissions and 2001-2010 for outpatient hospital visits) and information from the drug register (July 2006 -2011). We define all mothers who had at least one hospital visit for asthma or had asthma medication as having asthma. We used logistic regression to assess the relation between asthma and preterm birth. We adjusted the model for education, previous preterm birth, origin, parity, date of conception and maternal age. The prevalence of preterm birth was 5.4 % among mothers with asthma (n=13 261) and 4.4 % in the rest of the population (n= 111 931). The odds ratio for giving birth preterm was 1.27 (p < 0.01) for women with asthma compared to non-asthmatic mothers. 1.9 % of the asthmatic mothers had a hospital contact for asthma during pregnancy, and 8.4 % of them delivered preterm. Asthma is associated with an increased risk of preterm birth, particularly in women with exacerbations of the asthma during pregnancy.