Maternal Nutrient Intake during Pregnancy and Asthma Risk in Offspring Over a 10-year Period.

K. Viljoen, MD\textsuperscript{1}, R. Segurado, PhD\textsuperscript{1}, J. O’Brien, PhD\textsuperscript{2}, C. Murrin, PhD\textsuperscript{2} and C. C. Kelleher, MD\textsuperscript{1}

\textsuperscript{1}University College Dublin, Dublin, Ireland, \textsuperscript{2}University College Dublin, Dublin 4, Ireland

INTRODUCTION: Recent birth-cohort studies have reported an association of maternal pregnancy diet and risk of asthma in offspring. However, the literature on longitudinal patterns of asthma risk in relation to intra-uterine nutrient exposure is more limited.
The aim was to establish which dietary patterns in the maternal pregnancy diet influence the 10-year cumulative risk of childhood asthma in the Lifeways children.

**METHODS:** Data on childhood asthma status were provided by the child’s General Practitioner (GP) and mother at three time-points. Maternal pregnancy diet was assessed by a self-administered food frequency questionnaire (FFQ) at first ante-natal booking visit. Mothers provided data on socio-economic and morbidity indicators on themselves and index child at baseline, 3, 5 and 10-year follow-up. We subsequently fit a Generalised linear Mixed Model (GLMM) to the data, where personal id was modelled as random effect with random intercepts and slopes over time for individuals. The GLMM was then used to relate asthma diagnosis over 10 years to maternal pregnancy nutrition and several socio-economic, biological and morbidity predictors.

**RESULTS:** Of \( n = 897 \) mother-child pairs, several factors tested at uni-variate level proved to be significant predictors of childhood asthma. Females were at significantly lower odds (OR 0.39, 95% CI 0.23–0.66) and disadvantaged children were at significantly increased odds (OR 2.42, 95% CI 1.39–4.19) of being asthmatic. In the final adjusted models, pregnancy intake of oily fish (OR 0.16, 95% CI 0.03–0.94) and higher Vitamin D intake (OR 0.95, 95% CI 0.92–0.99) were significantly protective of asthma risk. Vegetable intake in Q1 vs Q4 (OR 1.70, 95% CI 1.08–2.66) significantly increased the odds of offspring asthma.

**CONCLUSIONS:** This prospective analysis suggests that maternal pregnancy diet may influence the risk of asthma in offspring over a period of 10 year follow-up, supporting the importance of intra-uterine influences on development of childhood asthma.