

**Abstract #: 1473****Early life immune modulatory exposures and allergy risk in Japanese children**

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**Background:** Incidence of allergies among children is increasing and is an important public health issue. We examined whether early life immune modulating exposures and surrogate measures are associated with a reduced risk of allergic diseases among Japanese children.

**Methods:** We analyzed data from the Health Diary Study comprising a nationally representative cross-sectional sample of children/adolescents aged 1 to 17 years in Japan. Data were collected on early life factors and diagnosed allergic diseases using a self-administered questionnaire. Multivariable logistic regression was conducted evaluating the effects of delivery method, breastfeeding, infections in infancy, older siblings, and daycare on the risk of any allergy and specific types.

**Results:** Among 744 children included (mean age=9.5 years; 52% males), 41% experienced an allergic condition. Infection in infancy was associated with an increased risk of asthma (OR = 1.77, 95% CI: 1.09-2.85) especially related to bronchitis and ear infection, and showed a dose-response effect with increasing number of infections ( $p=0.04$ ). Having older sibling(s) modified the effect of infections on asthma risk ( $p\text{-interaction}=0.11$ ). Reduction in risk of allergic rhinitis was suggestive related to exclusive breastfeeding and having two or more siblings.

**Conclusions:** Evidence is unclear regarding a protective role of early life immune modulatory exposures in allergy risk in Japanese children. In contrast, infectious episodes in infancy may increase the risk of asthma.

**Key messages:** While multiple mechanisms may be at play, infections in infancy may increase the risk of asthma which supports protection against infectious transmissions.