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## HOUSEHOLD ENVIRONMENT AND TOBACCO SMOKE EXPOSURE ON THE RISK OF ASTHMA EXACERBATIONS IN CHILDREN

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### ABSTRACT

Household air pollution comes from inhabitants' activities such as fumes for cooking, pets and smoking. The concentration of household air pollution is strongly influenced by physical environmental characteristics of the house and its inhabitants' behavior. Long-term exposure to air pollution influences public health, especially the risk of asthma exacerbations. The purpose of this study was to analyze the effect of household environment and tobacco smoke exposure on the risk of asthma exacerbation in children. This research used the design of observational research with a 12-week cohort study. The sample size consisted of 114 children based on medical record clinical trial with criteria of asthma patients aged 12-18 years and did not smoke. Examination of the household environment of the house covered lighting, temperature, humidity and ventilation. The researchers used self-reported observation with questionnaire to find out the activity or behavior of fuel use for cooking, pets, and smoking behavior. In addition, the researchers used Asthma Control Test (ACT) to assess the risk of asthma attack. Survival analysis was conducted by using Cox Proportional Hazard Model with 95% of confidence interval. Median survival of asthma exacerbation attack in a group of children who had an unhealthy physical house environment occurred at 9 weeks and it increased the risk of asthma exacerbation (HR=2.00, 95% CI= 1.148-3.483), p= 0.014. Children who lived with smoker at home had asthma exacerbation attack at 8 weeks, while children who did not live with smoker at their home had exacerbation asthma attack more 12 weeks. Therefore, tobacco smoke exposure increased the incidence of asthma exacerbation attack in children (HR= 2.85, 95% CI=1.691-4.809), p=0.001. Household physical environments and exposure to tobacco smoke increased the risk of asthma exacerbation attacks in children. Therefore, it is necessary to make the house be healthier and stop tobacco smoke exposure in the family.

**Keywords:** Household environment, tobacco smoke, asthma exacerbations