

## ASSOCIATION BETWEEN AMBIENT AIR POLLUTION AND ACUTE CHILD-HOOD WHEEZY EPISODES IN COLOMBO

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This study analyses the air pollution data from the continuous, fully automated, ambient air quality monitoring station operated at Colombo Fort and the records of daily attendance, at the Colombo Lady Ridgeway Children Hospital (LRH), for episodes of severe wheezing which required nebulizer therapy as an immediate treatment over a period of one year from 1<sup>st</sup> July 98 to 30<sup>th</sup> June 99.

Daily maximum one-hour averages of Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>x</sub>) have been used as the indicator parameters for air pollution. It was observed that the changing pattern of both pollutants is consistent ( $r > 0.6$ ) throughout the period of the study.

It was also observed that the incidence of the daily nebulization rate and daily maximum one-hour ambient sulphur dioxide and oxides of nitrogen were normally distributed over the study period.

In this study, the date of occurrence of the maximum and the minimum air pollution levels derived from daily maxima of Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>x</sub>) in each week (from Sunday to Saturday) were compared with those of daily attendance with acute wheezing at the LRH.

Out of fifty one (51) weeks, the occurrence of the highest nebulization at the highest polluted day (with respect to sulphur dioxide and oxides of nitrogen) and the lowest nebulization at the lowest polluted day in each week throughout the year was highly significant (binomial test,  $p=0.05$ ).

This study clearly indicates that there is a strong association between ambient air pollution (with respect to Sulphur Dioxide and Oxides of Nitrogen) and acute child hood wheezing episodes, in Colombo.