

Air pollution puts the health of school children at risk, study found

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A recently completed study by The Hong Kong Polytechnic University (PolyU) on 310 children in 12 schools across the territory found the air pollution level along the travelling routes from home to schools and particulate levels outside school both at a very high level, and most of the school children have lung function weaker than the predicted levels.

The study was done by Dr Hung Wing-tat, Professor Frank Lee Shun-cheng and Ms Lee Sin-hang of the University's Department of Civil and Environmental Engineering. They found that children in only two out of twelve surveyed schools have lung function better than predicted levels, whilst children in the remaining ten schools have lung function weaker than the predicted levels.

The study also found that carbon dioxide levels inside five of the twelve [school classrooms](#) are found to be higher than the stipulated good class level of HK Indoor Air Quality (HKIAQ), probably due to the presence of full class of students within the monitoring period.

PolyU researchers also collected information about the travelling patterns of these 310 [school children](#) and then monitored the air pollution level along the travelling routes of the subjects. About 48% of [school](#) children go to school on foot, the second most popular choice is the school bus (24%). They found that both PM10 and PM2.5 levels in various transportation modes are high.

It is worth noting that PM2.5 levels far exceed the stipulated health

levels of WHO safety level of 75 $\mu\text{g}/\text{m}^3$ (24 hours average) and the situation in school buses is worst. The total volatile organic compound (TVOC) levels in all transportation modes far exceed the good class level of HKIAQ and the situation in school buses is worst.

The study also found that allergic rhinitis is very common among local school children (ranging from 13% to 59.3% in schools). Allergic rhinitis is found to be related to tobacco smoking household, incense burning at home and molds at home. However, molds and mildews are common (25.9% to 62.5%) in household because of the humid weather.

Children in tobacco smoking households also have significantly poorer lung function. The study found high percentages of smokers in the households, ranging from 25.0% to 69.6%. One of the key findings is that Lung function of school children, FVC and FEV1 are found to be negatively co-related with PM10 levels in classrooms at 0.05 significant levels. It is critical to suppress the level of PM10 in classroom to protect the health of school children.

Pulmonary function tests were conducted on surveyed school pupils to assess their [lung function](#), which was measured by a spirometer in this study.

Provided by Hong Kong Polytechnic University

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