|  |
| --- |
| **Respiratory health in Vietnamese children during COVID-19 lockdown** |
| *Hong H.T.C. Le1, Pham Le An2, Peter D. Sly1,* |
| *1 Children's Health and Environment Program, Child Health Research Centre, Queensland, Australia*  *2 Centre for the Training of Family Medicine, Faculty of Medicine, University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam;* |
| **Introduction/Aim:**  Numerous studies established a reduction in traffic-related air pollution (TRAP) during COVID-19 lockdowns. However, people, particularly children, spent more time inside their houses to comply with social isolation and travel restrictions, leading to greater exposure to indoor air pollutant sources. We studied respiratory health in Vietnamese children during and after a strict lockdown in Ho Chi Minh City.  **Method:**  We measured FeNO and lung function (spirometry) and urinary biomarkers (MDA and 1-OHP) in 35 children aged 12-14 years after 4 months of no TRAP exposure (immediately after the lockdown was lifted) and then again after 6 months of TRAP exposure. 16 (45.7%) children were exposed to passive smoking at home  **Results:**  Ten children (28.6%) were previously diagnosed with asthma, and twelve children (34.3%) had a history of COVID-19. Overall, no differences in MDA and 1-OHP were seen between the two measurements. However, children exposed to passive smoking at home had higher levels of 1-OHP (group mean difference 2.90 µg/g creatinine, p=0.043) during lockdown. After TRAP re-exposure FeNO increased (group mean difference 15.5 ppb, p<0.001). Lung function, after adjusting for sex, asthma, COVID-19 history and child’s height and weight difference between the two assessments, was higher in post-lockdown with group mean increases in SVC (0.19L, p<0.001), FEV1 (0.10L, p<0.05), and FVC (0.15L, p<0.05). However, FEV1/FVC decreased by 4% (p<0.05).  **Conclusion:** These data suggest that exposure to passive smoking in the home environment is detrimental to children’s health and that the impacts of exposure to poor indoor air quality and TRAP may differ in Vietnamese adolescents.    **Key Words:** respiratory, children, COVID-19 lockdown, air pollution  **Nomination for New Investigator Award: No**  **Grant Support:**  This research was supported by a collaborative research project between Vietnam National Foundation for Science and Technology Development [NAFOSTED—Grant ID. NHMRC.108.03–2018.04] and National Health and Medical Research Council [NHMRC—Grant ID. APP1155241] in the form of a research grant. |