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**Title:** Individual exposure of urban children to black carbon

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**Body:** Background Epidemiological studies have reported that exposure to particulate matter (PM) from fuel combustion has adverse effects on the respiratory health in children (Gaudermann WJ et al. AMJRCCM 2002;166:76-84). However, the determinants of individual exposure remain unclear. Using a new portable monitoring device, we sought to determine individual exposure to black carbon (a surrogate for combustion-derived PM). Methods Primary school children were given an Aethalometer to carry with them at all times for a 24 hour period. Cumulative black carbon was calculated by calculating the area under the curve (AUC) when plotting BC vs time. Activity diaries were used to divide the day into time at home, time commuting, and time at school or work. Personal exposure was compared with non-cycling adult commuters. Results For children 50.6% ( $\pm$  9.3%) of exposure was at home, 19.1% at school and 30.3% at other times. Compared with adults (n=28), children (n=6) had similar 24 h exposure to BC (1019167 vs 706640 ng.m-3, p=NS). Children were exposed to more BC during the school day than adults at work (202380 vs 128710 ng.m-3, p=0.03).

**Conclusions** Children living in our urban area (East London) were exposed to more black carbon during the school day than adults working indoors. We speculate that this because school children spend a greater proportion of the working day outdoors, where PM levels are higher.