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**Title:** Dampness, mould and endotoxin in primary schools and lung function in children: The international HITEA study

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**Body:** Respiratory health effects in relation to moisture in homes are well recognised, but little is known on effects of dampness in school environments. We have previously reported a higher prevalence of respiratory symptoms in pupils from moisture damaged schools. Here we aim to study associations between dampness and visible mould in school buildings, endotoxin exposure and lung function in children. We included 15 Spanish, Dutch and Finnish primary schools with and 10 without moisture, dampness and visible mould based on reports and inspections. Endotoxin in settled dust was measured in 237 classrooms. Acceptable forced spirometry tests were done in 2736 children aged 6-12 years. Associations between moisture, log-transformed endotoxin levels and lung function were assessed by multiple linear regression adjusted for gender, age, height, home moisture, ETS, parental education, technician, school and (for endotoxin analyses) school moisture status. In the Netherlands and Finland, FEV<sub>1</sub> and FEF<sub>25-75%</sub> tended to be higher in children attending damaged schools or classrooms with higher endotoxin levels. FEV<sub>1</sub> was 39 (95%CI 5-72) ml higher in Dutch children attending damaged schools and in Finland FEV<sub>1</sub> significantly increased with increasing endotoxin exposure. In Spain, FEF<sub>25-75%</sub> tended to be somewhat lower, but not statistically significant, in relation to school moisture status and increased endotoxin levels. Our findings do not provide consistent evidence for adverse effects of moisture damage in the school environment on lung function in children. Heterogeneity across different geographical areas may be related to climate, ventilation characteristics and type of school building.