

Development of a **remote sensing technology for indoor air quality** monitoring within the National Children's Study

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Purpose: Develop and investigate the feasibility, acceptability and cost of remote sensing technology to monitor residential indoor and outdoor air quality.

Goal: To develop a new, low cost platform technology of real-time sensing and remote monitoring of air quality. Accurate and high quality environmental measurements are an essential part of the NCS especially for evaluation of hypotheses relating to asthma onset.

Approach: We are developing and testing the technical feasibility of real-time sensors with telemetry data transfer for cost-effective monitoring of home air quality parameters (temperature, humidity, particulates (PM_{2.5} and PM_{0.5}), total volatile organic compounds (VOCs), nitrogen oxides (NO_x) and carbon monoxide) both inside and outside of homes.

Progress: In our attempt to be cost effective, we have been evaluating sensors in a lower cost range. However, some of these sensors have been either insufficiently sensitive for residential use or have had other data gathering problems. In Phase I we have been testing the monitor platforms in seven test homes inside and four also outside. We will be reporting our initial assessment of the temperature, humidity and PM data from these test homes. Our initiation of Phase 2 (monitors in NCS subject homes) will not occur until early September.