



Research Summary: Long-term exposure to ultrafine particles and its effect on cardiovascular health of Puerto Rican adults

By Eda Y. Lu

Background

Ultrafine particles (UFP; particles that are smaller than 0.1 micrometer) are formed in the exhaust of motor vehicles. Previous research showed that UFP exposure is associated with increased risk of cardiovascular disease, but there are only a small number of studies on the health effects of long-term UFP exposure. The study reported here further investigates the relationship between UFP and cardiovascular health.

What did we do?

The analysis used data from 791 adults who participated in the Boston Puerto Rican Health Study between 2004 and 2015. Participants were recruited door-to-door and through a community approach.

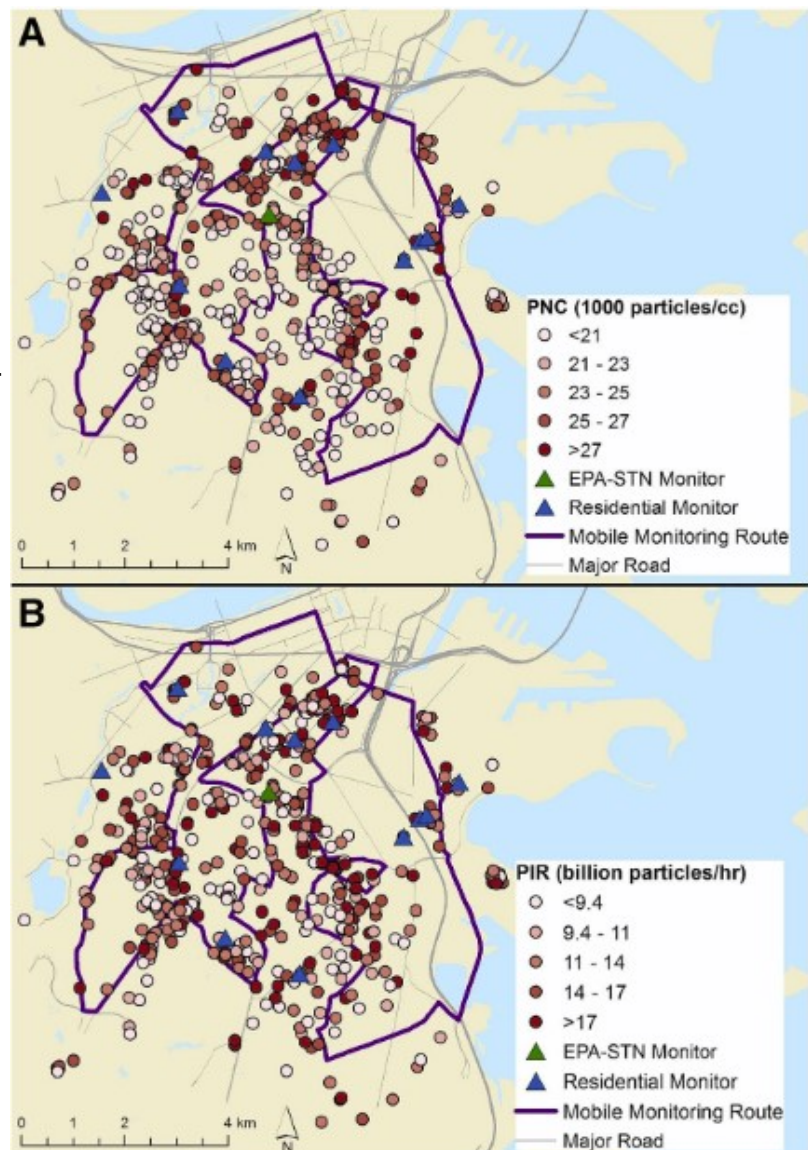


Figure 1. Map of study area in Boston. A) shows the UFP level in the area and B) shows the amount of UFP being inhaled in participants in this area.

They all identified themselves as Puerto Rican. Each participant was visited up to three times. Measurements of UFP were taken in Boston and Chelsea. From these measurements, a mathematical model was constructed to approximate individuals' UFP exposures. An additional approach modified the exposure estimates to account for how breathing rate altered exposure. Researchers also collected participants' health information, including measurements of height, weight, and blood pressure. A blood sample was taken to assess a marker of inflammation.

What did we find?

There was some evidence that higher UFP exposure was associated with levels of inflammation as indicated by the blood marker. There was no association between UFP exposure and blood pressure. Interestingly, when breathing rate was taken into consideration, UFP exposure was associated with blood pressure, but not the inflammation marker.

Why is it important?

This study suggests exposure to UFP could be related to cardiovascular health. Future investigations are needed.

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https://link.springer.com/epdf/10.1186/s12940-018-0379-9?author_access_token=RCKy5NWP5AOMRPqcQ3ij2_BpE1tBhCbnbw3Buzl2RMYwoCS6iHNMNVi3twWTgcUV2IY22zdaQnUu8XYUvQslzcyRSCOpv8udEv-avCs0TalzulZlo8Ggu5yq7p3fnAMGpmNHdl_giZ2T9AYUr2g%3D%3D