



## Research Summary: The Effect of Air Filtration on Indoor Air Pollution Reduction and Cardiovascular Health.

By Eda Y. Lu

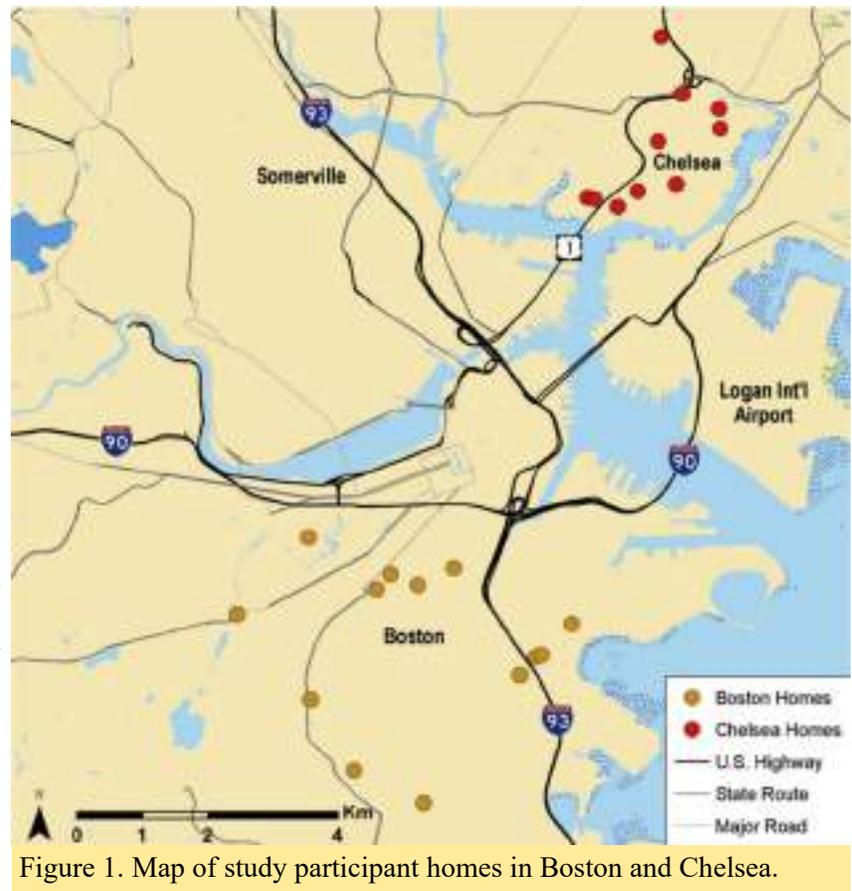
### Background

Previous studies have found that exposure to ultrafine particles (UFP; airborne particles that are smaller than 0.1 micrometer) is associated with negative effect on blood and heart health. The level of UFP is elevated near major roadways and highways, and this may explain why people who are living in these locations are at increased risk of cardiovascular disease. Therefore, there is increasing interest in using air filtration to reduce urban UFP exposure in both schools and homes.

Several studies have shown that filtration can reduce indoor UFP. This study tested the effectiveness of high efficiency particulate arrestance (HEPA) filters and their potential cardiovascular health benefits for people living near a busy highway.

### How was it done?

This study recruited 23 participants living in the cities of Boston or Chelsea. A high efficiency particulate arrestance (HEPA) filter was installed in each participant's home for 21



days, then switched to a sham filter for another 21 days, or vice versa. A particle counter was installed in each home to count the UFP concentration. The potential cardiovascular health benefits of the HEPA filter was assessed through blood sample collection.

### What did we find?

Compared with the sham filter, the UFP concentration was lower during the periods when the HEPA filter was installed, which indicated the HEPA filter reduced the UFP concentration. However, we did not find benefits from HEPA filtration on cardiovascular health.

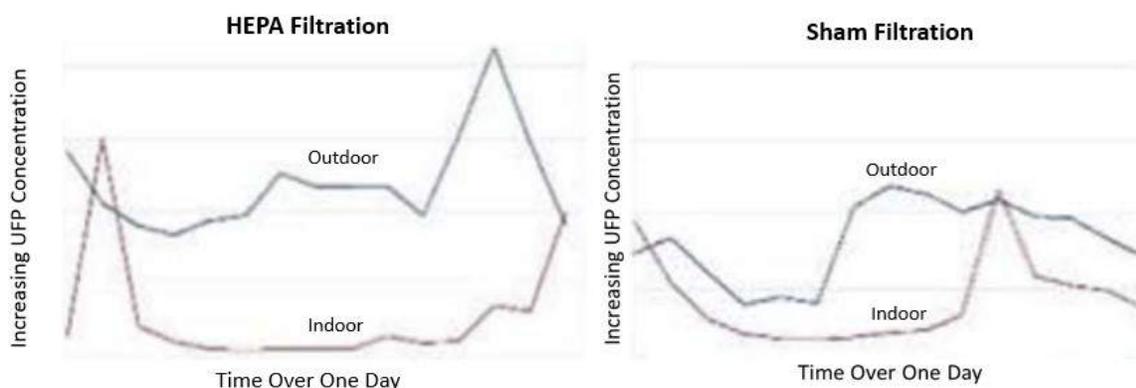


Figure 2. The HEPA filter reduced more indoor UFP than the sham filter.

### Why is it important?

The outcome of this study suggests a need for further research to investigate how HEPA filtration is beneficial for cardiovascular health.

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#### To learn more about this research, please refer to the following source:

<https://sites.tufts.edu/cafeh/>  
[https://sites.tufts.edu/cafeh/files/2017/10/HEPA\\_BPRHS\\_BE\\_2017.pdf](https://sites.tufts.edu/cafeh/files/2017/10/HEPA_BPRHS_BE_2017.pdf)