An evidence map of ultrafine epidemiology
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Introduction
There is growing interest in the health effects of ultrafine particles which are unregulated in the US.

Methods
We conducted a systematic literature search in PubMed, Global Health, Scopus and TOXLINE from their inception through April 2017. Search terms were in three categories: exposure (e.g., particle number count, PNC), health outcomes (e.g., cardiovascular) and sources (e.g., traffic). We identified 8,630 records without duplicates. Abstract review by two independent screeners resulted in selection of 292 articles for full text review. Data was extracted from full text reviews using a standardized form.

Results
Of the articles screened, 113 are included in the evidence map. The largest reason for exclusion was not measuring PNC (67). We also excluded from the evidence map controlled exposure and occupational studies. And, we excluded studies that used a measure of ultrafine particles other than PNC. Most of these studies (95) were short term (<month) while only 6 were of long term (usually annual) associations. There were 455 short term associations and 18 long term associations reported. Most of the reported associations were for cardiovascular (340 and 14, short and long term respectively) or respiratory (101 and 4) measures. Evidence was categorized as strong (statistically significant; 149 and 5, short and long term respectively), suggestive (trend, 150 and 2) or null (156 and 11).

Conclusions
Our review shows that there is a robust and growing literature of associations between ultrafine particles and cardiovascular and respiratory health. However, the literature is much larger for short term, time series-type studies and there is a need for more and better long term studies since they will be needed to drive policy decisions.

Acknowledgements
This review is nested within a community-level intervention study in the City of Somerville and the neighborhood of Chinatown in Boston, MA, USA. The evidence map is a step toward a systematic review and meta analysis.