



# Surrounding Residential Greenness and Birthweight



**Speaker:** Dr. Kelvin Fong  
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**Date:** 9 October 2018 (Tue)

**Time:** 13:00 - 14:00 (*Light refreshment will be reserved*)

**Venue:** Seminar Room 3, 1/F, School of Public Health Building  
Prince of Wales Hospital

**Registration:** <https://goo.gl/ZHicsh>

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## Abstract

Natural vegetation, or greenness, around residential areas may promote health by reducing harmful exposures, relieving stress, or promoting healthful activities. We thus hypothesize that maternal exposure to greenness during pregnancy may benefit fetal growth as indicated by newborn birthweight. This is important since lower birthweight is associated with chronic disease and mortality.

Satellite remote sensing measures greenness through the calculation of the normalized difference vegetation index (NDVI). Combined with geospatial data science tools, births are assigned prenatal exposures to greenness using maternal residential records. By applying regression methods, we assess the association between greenness and birthweight, adjusted for potential confounders such as maternal education.

With birth records in Massachusetts, USA from 2001-2012, we found a positive, non-linear relationship between greenness and continuous birthweight. Interestingly, the associations in the lower range of greenness were stronger than in the higher range. We further explored greenness associations with low birthweight (LBW; < 2,500 g) and small for gestational age (SGA; < 10th percentile of birthweight given gestational age and newborn sex). Greenness was associated with lower odds of LBW and SGA. In contrast to some prior studies, associations were stronger among those with higher socioeconomic status.

In summary, recent findings suggest that maternal exposure to greenness during pregnancy leads to higher birthweight. Our work also demonstrates the application of satellite imagery and modern geospatial data science tools in epidemiologic research.

## Speaker's Biography

Dr. Kelvin Fong is currently a postdoctoral associate at Yale University School of Forestry and Environmental Studies, focusing on environmental health disparities. He recently completed his Doctor of Science in environmental epidemiology at Harvard T. H. Chan School of Public Health, where he completed his dissertation on maternal environmental exposures and birthweight. He is interested in applying geospatial data science and advanced regression methods in epidemiologic settings to understand disparities in environmental exposures and subsequent health effects.



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