Hierarchical model and distributed lag nonlinear models explore air pollution and childhood allergies in a multistage survey

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Position: Ph.D. student, Visiting student/Scholars of Ge-iSEE lab

Major: Environmental Epidemiology

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Venue: Conference room 507, 5/F, 155 College st.
Dalla Lana School of Public Health, University of Toronto.

Join Zoom Meeting:
https://utoronto.zoom.us/j/5912575631.
Meeting ID: 591 257 5631
Passcode: iSEE2023

Topic introduction :

Air pollution has been thought as an important risk factor for adverse health outcomes such as allergic diseases, particularly in children. **Multicenter/multistage survey design** is powerful in dealing correlated observational data in environmental epidemiological studies, providing reliable evidence for insights into the associations of air pollution and asthma.

Hierarchical models have strengths in dealing nested data that are commonly used in multicenter/multistage survey studies. **The distributed lag nonlinear model (DLNM)** was proposed to quantify exposure-response relationships and the lag effects of the exposure, providing a theoretical foundation in detection of sensitive exposure windows to inform interventions for avoidable exposures.

The China Children Homes and Health (CCHH) Project is the largest multicenter cross-sectional study in China focusing on exploring the association between environmental exposure and preschool children allergic diseases. This project was launched in 2010, with a second repeat survey completed in 2019, and a third survey is planned for next year. The database covers basic information, environmental exposures and allergic disease-related outcomes for nearly 80,000 children and powerful in elucidating the association between air pollution and allergic diseases in children. This topic will analyze the advantages and highlights of the above two models in multicenter/multistage surveys through this project.

The speaker:

Tianyi is a Ph.D. student of Occupation and Environmental Health Department, School of Public Health, Fudan University. Her doctoral research, supervised by Prof. Zhouhui Zhao is focused on air pollution and child allergy by creating CCHH research of 80,000 children aged in 3-6 years. This is one of the biggest repeated cross-sectional study in China to assess air pollution and child allergy. During the period of her Ph.D. study, she has published papers in esteemed peer-reviewed papers, including *Allergy*, *EP*, and *EI*. Currently, Tinayi joined the Ge-iSEE Health lab as a visiting student to develop deeper studies in spatial geographic analysis under the mentorship of Dr. Erjia Ge.

Tianyi is set to earn her Ph.D. in early 2024 and is actively pursuing an international postdoctoral fellowship to advance her academic career. Read more about Tianyi's work on her ResearchGate page and reach out to her at tianyiabc.chen@mail.utoronto.ca.

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