Zhenyu Zhang, Ph.D

CURRICULUM VITAE

Sep1, 2021

1. Personal Information

Working Address
Department of Global Health
Peking University School of Public Health
38 Xueyuan Road, Chaoyang District, Beijing
China
Email: zzy@pku.edu.cn

2. Education and Training

- 2016.11- 2021.7 Post-doc, Johns Hopkins University, Baltimore, USA.
- 2013.9-2016.7 Ph.D. of Public Health, Zhejiang University, Hangzhou, China.
- 2014.9-2015.9 Visiting Student, Harvard University, Boston, USA.
- 2011.9-2013.7 Master of Public Health, Zhejiang University, Hangzhou, China
- 2006.9-2011.7 Bachelor of Medicine, Shenyang Medical College, Shenyang, China

3. Research Participation

1) Zhenyu Zhang, Rebecca J Kamil, Nyall R London, Stella E Lee, Venkataramana K Sidhaye, Shyam Biswal, Andrew P Lane, Jayant M Pinto, Murugappan Ramanathan, Jr. Long-Term Exposure to Particulate Matter Air Pollution and Chronic Rhinosinusitis in Non-Allergic Patients. American Journal of Respiratory and Critical Care Medicine. 2021

2) Zhenyu Zhang, Nicholas R Rowan, Jayant M Pinto, Nyall R London, Andrew P Lane, Shyam Biswal, Murugappan Ramanathan. Exposure to particulate matter air pollution and anosmia. JAMA Network Open. 2021

3) Zhenyu Zhang, Dawei Zhu, Bin Cui, Ruojing Ding, Xuefeng Shi, and Ping He. Association between particulate matter air pollution and lung cancer. Thorax. 2020.

4) Zhenyu Zhang, Jeonggyu Kang, and Yun Soo Hong. Long-Term Particulate Matter Exposure and Incidence of Arrhythmias– A Cohort Study. Journal of the American Heart Association. 2020.

5) Zhenyu Zhang, Di Zhao, Yunsoo Hong, Yoosoo Chu, and Eliseo Guallar. Long-term particulate matter exposure and onset of depression in middle-aged men and

women. Environmental Health Perspectives. 2019.

6) Zhenyu Zhang, Francine Laden, John Forman, and Jaime Hart. Long-term exposure to particulate matter and self-reported hypertension: a prospective analysis in the Nurses' Health Study. Environmental Health Perspectives. 2016.

7) Zhenyu Zhang, Jianbing Wang, Jaime E. Hart, Francine Laden, Chen Zhao, Tiantian Li, Peiwen Zheng, Die Li, Zhenhua Ye, Kun Chen. National scale spatiotemporal land-use regression model for PM2.5, PM10 and NO2 concentration in China. Atmospheric Environment. 2018.

8) Zhenyu Zhang, Pengfei Cai, Jianbing Wang, Zhenhua Ye, Peng Shen, Huaichu Lu, Mingjuan Jin, Mengjia Gu, Die Li and Hongbo Lin. Association of particulate matter air pollution and hospital visits for respiratory diseases: a time-series study from China. Environmental Science and Pollution Research. 2019.

9) Zhenyu Zhang, Jianbing Wang, Mingjuan Jin, Mei Li, Litao Zhou, Fangyuan Jing and Kun Chen. Can medical insurance coverage reduce disparities of income in elderly patients requiring long-term care? The case of the People's Republic of China. Clinical Interventions in Aging. 2014.

10) Faisal Rahman, Zhenyu Zhang, Di Zhao, Matthew J Budoff, Frank J Palella, Mallory D Witt, Rhobert W Evans, Lisa P Jacobson, Frederick K Korley, Eliseo Guallar, Wendy S Post, Johns W McEvoy R. Association of High-Sensitivity Troponin with Cardiac CT Angiography Evidence of Myocardial and Coronary Disease in a Primary Prevention Cohort of Men: Results from MACS. The Journal of Applied Laboratory Medicine. 2019.

4. Research Interest:

1) Title of research: **Relationship between Multiple Environmental Exposure and Cardiovascular Disease Incidence and Survival.**
   a. Period: 2016-2019
   b. Main research objective: The goal of this project was to comprehensively assess the association between long-term exposure to multiple environmental air pollution ($PM_{2.5}$ and NO_2) and the onset of cardiovascular disease include arrhythmias, subclinical atherosclerosis, and arterial stiffness. We had access to an unprecedented collection of a large cohort of Korean men and women who attended repeated health screening exams between 2002 and 2016, with a wealth

of time-varying information on lifestyle factors, residential addresses, and medical record confirmed cases.

    c. Role: Co-principal investigator

2) Title of research: **The Role of Air Pollution in Otolaryngologic Disease.**

    a. Period: 2020-2022

    b. Main research objective: We will conduct a retrospective cohort study to analyze the association between air pollution exposure and otolaryngologic diseases. All available inpatient and outpatient medical records will be extracted from facilities within the Johns Hopkins Health System. We will assess the association between long-term air pollution exposure and the presence of chronic rhinosinusitis. We will also conduct a survival analysis to estimate the association between long-term air pollution and the development of a vary of outcomes, including thyroid cancer and olfactory loss.

    c. Role: Co-Principal investigator

3) Title of research: **The Impact of Electronic cigarettes (E-Cigs) on the Incidence of Pre-diabetes, Arthritis Diseases, and sleep disorder in the U.S. Adults**.

    a. Period: 2020-2021

    b. Main research objective: In the past decade, several alternative vaping products have hit the market, rapidly gaining consumers among adults and, especially, adolescents. Despite their popularity, the public health effects of E-Cigs use are uncertain. We will estimate the association between E-Cigs use and risk of self-reported prediabetes, arthritis diseases, and sleep disorder in the Behavioral Risk Factor Surveillance System (BRFSS) data, a large nationally representative population of the U.S. adults.

    c. Role: Principal investigator

4) Title of research: **Particulate Matter Exposure and Incidence of Lung cancer, and Stroke in the Urban Employee Basic Medical Health Insurance Beneficiaries**.

    a. Period: 2019-2020

    b. Main research objective: Studies have shown that long-term exposure to air pollution increases mortality. Previous studies involved predominantly urban populations and did not have the statistical power to estimate the health effects in underrepresented groups. We estimated the association between annual particulate matter exposure and incidence of stroke and lung cancer in the Urban Employee Basic Medical Health Insurance beneficiaries, a nationally representative population of Chinese adults.

    c. Role: Co-principal investigator

5) Title of research: **Exposure to Particulate Matter Air Pollution and Incident Cognitive Diseases.**

    a. Period: 2016-2018

    b. Main research objective: Declines in cognitive function and mobility are common in older adults, arising from the collective impacts of subclinical pathologies and chronic disease across multiple organ systems. We evaluated the prospective

association between long-term particulate matter air pollution exposure and the developing depression assessed using the Center for Epidemiological Studies Depression (CES-D) scale in a large cohort of Korean men and women who attended repeated health screening exams between 2002 and 2016. We also conducted a systematic review of the association between short-term and long-term air pollution exposure and depression.

    c. Role: Co-principal investigator

6) Title of research: **Air Pollution Spatiotemporal Model in China.**

    a. Period: 2015-2016

    b. Main research objective: Previous studies have included increasingly larger populations and sophisticated analytical methods in air pollution-related epidemiological studies. However, the Environmental Protection Agency air pollution monitoring network only studies would: 1) exclude less urban areas where $PM_{2.5}$ is not monitored; 2) not be able to differentiate health effects associated with regional/ long-range transport versus local pollution sources; and 3) not be able to estimate health effects of air pollution at low concentrations, which requires large populations in that exposure range. We used the land-use regression model to predict and validate monthly $PM_{2.5}$, PM_{10}, and NO_2 levels at 1x1 km grid cell resolution for entire China from 2014-2016. This data would be used to calculate zip-code exposures that vary by location and date, which would be linked to air pollution-related epidemiological study.

    c. Role: Co-principal investigator

7) Title of research: **Particulate Matter Exposure and the Incident Hypertension.**

    a. Period: 2014-2015

    b. Main research objective: Over a third of adults in the United States are previously estimated to have hypertension. Diet, obesity, and physical activity are known as risk factors, and a growing body of evidence suggests that exposure to air pollution is also associated with the risk of hypertension. We estimated the association between long-term $PM_{2.5}$ exposure and the incidence of hypertension in the Nurses' Health Study.

    c. Role: Co-principal investigator

8) Title of research: **Fine Particulate Matter and Hospital Admission for Respiratory Diseases.**

    a. Period: 2015-2016

    b. Main research objective: Pneumonia is the leading infectious cause of death among young children worldwide, with most cases occurring in low and middle-income countries. We estimated the association between short-term $PM_{2.5}$ exposure and hospital admission of respiratory diseases in 28 health institutions from Ningbo, China.

    c. Role: Co-principal investigator