

TITLE: Impacts of Air Pollution on Life Expectancy Across Multiple Generations: Race, Ethnicity, and Vulnerability Perspectives

PRIME CONTRACTOR: University of California, Berkeley \$400,069

SUBCONTRACTOR(s): Northern California Institute for Research and Education \$99,931

PRINCIPAL INVESTIGATOR(s): Jason Su, PhD

CONTRACT TYPE: Interagency Agreement

BUDGET: \$500,000

CONTRACT TERM: **48 Months**

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I. SUMMARY

Although state regulatory efforts have focused on the reduction of air pollution to meet state and federal health-based standards and improve the health of Californians, pollution reductions have not been experienced equally in all communities. The purpose of this statewide study is to understand which communities in California continue to experience negative health impacts due to high levels of exposure to fine particulate matter (PM_{2.5}) by investigating the impacts of PM_{2.5} on life expectancy. The study will assess the impacts to life expectancy from PM_{2.5} exposure in California across time, generations, and within families to document the continued burden of impacts from PM_{2.5}. For this contract, UCB has assembled a multidisciplinary team to investigate PM_{2.5} exposure and the years of life expectancy loss from PM_{2.5} over 30 years (1990-2020). Using statewide Medi-Cal population data the impacts of PM_{2.5} will be calculated for: 1) the first (1990-2005) and second (2006-2020) generations of the entire Medi-Cal population; 2) race/ethnicity and vulnerability (based on CalEnviroScreen scores) subgroups of each generation; and 3) the first and second generations within families. The study will map the disparities in PM_{2.5} exposure and life expectancy loss over the two generations at the census tract level for the entire state. The final maps will be presented in an online and publicly accessible format and will allow for identification of communities that have the highest magnitude

and persistence of PM_{2.5} exposure and PM_{2.5} specific impacts to life expectancy over two generations. In collaboration with the Regional Asthma Management & Prevention (RAMP) program, the project will conduct community outreach to solicit feedback on the project and maps, and to share the final research results. This research will support CARB's regulations, strategies, and programs to better protect vulnerable communities by understanding which census tracts and groups in California have continued to experience high air pollution exposure and pollution specific impacts to life expectancy.