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**“Socioeconomic Disparities in Environmental Conditions at Playgrounds in the Greater New Orleans Area”**

**Introduction:** Socioeconomic disparities in the environmental quality of playgrounds are a widely recognized environmental justice problem across the United States. This study aims to quantify pollution risk factors for children at playgrounds in minority vs non-minority neighborhoods in the Greater New Orleans area. Levels of lead in soil and air pollution levels of fine particulate matter, ozone and carbon monoxide in air were measured.

**Methods:** Four parks in the Greater New Orleans area were chosen to collect samples: three in the Claiborne Corridor area and one in Old Metairie. Fine particulate matter (PM<sub>2.5</sub>), carbon monoxide (CO), and ozone (O<sub>3</sub>) concentrations were measured in each park over a period of 30 minutes to 2 hours between the hours of 10:00 am and 2:00 pm using the AirBeam sensor for PM<sub>2.5</sub>, and Aeroqual sensors for CO and O<sub>3</sub>. Soil from the top 1-2 inches were collected from play areas in each park and analyzed for lead (Pb) with a SciAps XRF. Sociodemographic, health outcome and other environmental hazard data were mapped using the US Environmental Agency’s (EPA) EJ Screen. Levels of environmental hazards were summarized by park and compared to standards using Microsoft Excel and Habitat Map.

**Results:** Playgrounds in the minority neighborhood of Claiborne Corridor had higher pollutant levels than the playground in the non-minority neighborhood of Old Metairie. Average PM<sub>2.5</sub>, ozone, and carbon monoxide levels were higher in Claiborne Corridor parks compared to levels in Pontiff Playground. Soil samples taken near the interstate had consistently higher lead levels than samples taken in areas away from the interstate, which suggests that interstate traffic was the source. Average soil lead levels in two out of three parks in Claiborne Corridor exceeded EPA’s Soil Lead Standard (100 ppm). The highest soil lead levels were in Hunter’s Field (under I-10), where nine samples exceeded 100 ppm and four samples exceeded 400 ppm, with a maximum of 624 ppm. Ozone levels in Lafitte Greenway were 2.4 ppm, which exceeds EPA’s annual average standard of 0.070 ppm.

**Conclusions:** Based on our findings, children in minority Claiborne Corridor neighborhoods face disproportionately higher exposure to pollution than those in high-income areas, predominantly white areas. Additionally, children are more susceptible to health effects from environmental pollutants since they have growing and developing lungs that breathe in significantly more air per unit body weight than adults. Exposure to lead can result in neurodevelopmental disorders, cognitive delays, and behavioral problems. Exposure to air pollution can result in health conditions such as asthma, and later life chronic diseases such as bronchitis, COPD, lung cancer, and heart disease. Federal, state, and local actions must be taken to remediate pollution and reduce exposure in these communities.