



## **The astonishingly holistic role of urban soil in the exposure of children to lead.**

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The long-term resilience and sustainability of urban communities is associated with its environmental quality. One major impediment to community welfare is children's exposure to lead because it is a root cause of disparity and chronic conditions including health, learning, and behavioral differences. There is no safe level of lead exposure and this revelation is confounded by the lack of an effective intervention after exposure takes place. In August, 2005, Hurricane Katrina flooded 80% of New Orleans. This report explores the natural experiment of the dynamic changes of soil and children's blood lead in New Orleans before and ten years after the flood. Matched pre- and post-Hurricane soil lead and children's blood lead results were stratified by 172 communities of New Orleans. GIS methods were used to organize, describe, and map the pre- and post-Katrina data. Comparing pre- and post-Katrina results, simultaneous decreases occurred in soil lead and children's blood lead response. Health and welfare disparities continue to exist between environments and children's exposure living in interior compared with outer communities of the city. At the scale of a city this investigation demonstrates that declining soil lead effectively reduces children's blood lead. The astonishingly holistic role of soil relates to its position as a lead dust deposition reservoir and, at the same time, as an open source of ingestible and inhalable lead dust. Decreasing the soil lead on play areas of urban communities is beneficial and economical as a method for effective lead intervention and primary prevention.

### References

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