ASN LEADING THE FIGHT AGAINST KIDNEY DISEASE

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Press Release

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AIR POLLUTION MAY HAVE DAMAGING EFFECTS ON THE KIDNEYS

Highlight

- In a study of US veterans, researchers found a linear relationship between air pollution levels and risk of experiencing kidney function decline and of developing kidney disease or kidney failure.

Air quality remains suboptimal in many parts of the United States and in multiple regions around the world.

Washington, DC (September 21, 2017) — Studies have shown that air pollution can have negative effects on cardiovascular health and life expectancy. Now new research indicates that it is also harmful to the kidneys. The study, which appears in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN), reveals that the effects on the kidneys are seen at low levels of particulate matter and increase linearly with rising levels of pollution.

Information on the relationship between air pollution and kidney disease is very scarce. To investigate, a team led by Ziyad Al-Aly, MD (Director of Clinical Epidemiology at the VA Saint Louis Health Care System) linked the Environmental Protection Agency (EPA) and the Department of Veterans Affairs databases to examine information on 2,482,737 US veterans who were followed for a median of 8.5 years. Air pollution levels were also assessed using space-borne sensors from NASA satellites.

The researchers found a linear relationship between air pollution levels and risk of experiencing kidney function decline and of developing kidney disease or kidney failure. The results suggest that each year in the United States, 44,793 new cases of CKD and 2438 new cases of kidney failure are attributed to particulate matter air pollution exceeding the EPA's recommended limit of 12 $\mu g/m^3$.

"Even levels below the limit set by the EPA were harmful to the kidneys," noted Dr. Al-Aly. "This suggests that there is no safe level of air pollution." He noted that the burden is not evenly distributed geographically: the highest toll seems to be in southern California and in large swaths of the Midwest, the Northeast, and the South. Of course the findings have

implications outside the United States and may help explain the substantial variation in the burden of kidney disease observed around the world.

Study co-authors include Benjamin Bowe, MPH, Yan Xie, MPH, Tingting Li, MD, Yan Yan, PhD, and Hong Xian, PhD.

Disclosures: The authors reported no financial disclosures.

The article, entitled "Particulate Matter Air Pollution and the Risk of Incident CKD and Progression to ESRD," will appear online at http://jasn.asnjournals.org/ on September 21, 2017, doi: 10.1681/ASN.2017030253.

Since 1966, ASN has been leading the fight to prevent, treat, and cure kidney diseases throughout the world by educating health professionals and scientists, advancing research and innovation, communicating new knowledge, and advocating for the highest quality care for patients. ASN has nearly 17,000 members representing 112 countries. For more information, please visit www.asn-online.org or contact the society at 202-640-4660.

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Facebook: Studies have shown that air pollution can have negative effects on cardiovascular health and life expectancy. Now new research indicates that it is also harmful to the kidneys. The study, which appears in the *Journal of the American Society of Nephrology*, reveals that the effects on the kidneys are seen at low levels of particulate matter and increase linearly with rising levels of pollution.

Potential image: "heat maps" in the paper that show the geographic distribution of the burden of CKD attributable to air pollution.