

# Air pollution-associated CKD (APA-CKD): More evidence from communities near petrochemical industries in The Niger Delta (preliminary results)



- Comparative cross-sectional study**  
Two Nigerian States
- Communities situated near petrochemical industries**
- Sociodemographic and clinical data**
- Laboratory investigation**
- Air pollutants concentrations**  
Measured over 6 months

	Delta State Exposed group n= 574	Ondo State Less-exposed group n= 456
<b>Prevalence of CKD</b>	<b>15.7%</b> (12.7-18.6)	<b>9.7%</b> (6.9-12.4)
<b>eGFR &lt;60ml/min</b>	<b>13.4%</b> (10.6-16.2)	<b>7.7%</b> (5.2-10.1)
<b>Severely increased urine ACR</b>	<b>3.0%</b> (1.6-4.4)	<b>2.5%</b> (1.1-3.9)
<b>↑ MPO</b>	<b>63.6%</b> p=0.001	<b>23.1%</b>
<b>↑ CRP</b>	<b>41.1%</b> p=0.08	<b>34.4%</b>
<b>↑ MDA</b>	<b>64.9%</b> p<0.001	<b>34.7%</b>

**PM2.5, PM10, and CO<sub>2</sub>** exceeded the WHO recommended acceptable limits

**CO, VOC, NO<sub>2</sub> and O<sub>3</sub>** acceptable limits in both communities

**Independent risk factors of CKD (OR)**

- Older age **2.29** (p=0.002)
- Female sex **1.96** (p=0.011)
- Residence **1.73** (p=0.032)
- Current smoking **2.66** (p=0.011)

MPO, myeloperoxidase; CRP, C-reactive protein; MDA, malondialdehyde; PM, particulate matter; NO<sub>2</sub>, nitrogen dioxide; CO<sub>2</sub>, carbon dioxide; WHO, World Health Organization; CO, carbon monoxide; VOC, volatile organic compounds; O<sub>3</sub>, ozone.

**Conclusion:** Some criteria air pollutants remain high in communities near petrochemical refineries. The prevalence of CKD in these communities was 1.6 folds the prevalence in less-exposed communities. A higher proportion of people residing near petrochemical industries had elevated systemic inflammatory markers than the less-exposed people. Age, female sex, Residing the exposed community, and current smoking, were independently associated with CKD.

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