



Improving Awareness & Patient Outcomes

Potential Impacts of Climate Change On Kidney Disease, Mental Health, & Underserved Populations

April 22, 2024 (Earth Day)

February 2024 US.CORP.D.24.00010

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Presenters



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The Year 2023 Was Recognized As:¹



The **warmest year** in recorded history



Record high for **greenhouse gas** emissions



Record high **sea level** rise



Record low **Antarctic ice**



A year with more **severe weather** and resulting destruction to some communities



Climate change with its extreme weather, heat exposures, and air pollution can increase morbidity and mortality rates for patients with chronic medical conditions.²

1. Provisional State of the Global Climate in 2023. World Meteorological Organization. <https://wmo.int/resources/publications/provisional-state-of-global-climate-2023>, Published December 4, 2023. Accessed December 7, 2023.
2. Climate Change and the Health of People with Chronic Medical Conditions. Environmental Protection Agency. <https://www.epa.gov/climateimpacts/climate-change-and-health-people-chronic-medical-conditions>. Accessed December 7, 2023.

Climate Change & Kidney Disease

Climate change and increased heat wave exposures have affected increased numbers of individuals globally.¹



Heat Waves And Heatstroke Can Cause:^{1,2}

- Acute kidney injuries (AKI)¹
- Electrolyte abnormalities such as hyponatremia and hypokalemia due to urinary electrolyte excretion and/or loss through sweat¹
- Recurring AKIs which may increase the risk of developing chronic kidney disease¹
- Nephrolithiasis and urinary tract infections due to underhydration and low urine volumes¹
- Increased emergency department visits and hospitalizations for kidney disease²

1. Johnson RJ, et al. Ann Nutr Metab. 2019;74 Suppl 3:38-44.
2. Qu Y, et al. American Journal of Kidney Diseases. 2023;81(5).



Climate Change & Mental Health



Potential Mental Health Effects Due To Climate Change:¹

- Greater stress including stress-related disorders
- Anxiety
- Despair
- Depression
- Suicidal Ideation

1. Charlson F, et al. Int J Environ Res Public Health. 2021;18(9):4486.

Climate Change & Mental Health



Environmentally Forced Migration:

- May disrupt social ties that normally buffer stressors related to prolonged and acute climate events.¹
- “Eco-Anxiety” coined by Glenn Albrecht, describes chronic fear of environmental doom and feelings of anxiety, or grief related to climate change and worry about the future and expected negative changes.^{1,2}

1. Gawrych M. *Psychiatria Polska*. 2022;56(4):903-915.

2. Coffey Y, et al. *J Clim Change Health*. 2021;3:1-6.

Climate Change & Mental Health



Environmental Disasters:



Primary impact of environmental disasters and associated trauma and grief can lead to:¹

- Impaired sleep
- Decreased psychological health
- Interference in cognitive functioning including decreased memory, executive function, and the ability to concentrate
- Increased high-risk behaviors including domestic violence, alcoholism, and substance-abuse

Secondary effects on mental health may be due to environmental and ecological disruptions such as:¹

- Physical and social infrastructure damage
- Food/water shortage
- Conflict
- Displacement
- Decreased physical health

1. Gawrych M. Psychiatria Polska. 2022;56(4):903-915.

Underserved Populations

How Does Climate Change Impact Underserved Populations & Health Equity?

Marginalized and underserved communities are vulnerable to health risks secondary to climate change such as poor air quality, increased temperatures, and extreme weather.¹

Children

Heat stroke and illness are a greater threat to children than adults. Monitoring their exertion and hydration can lessen this risk.²

Communities Of Color

Some communities in risk-prone areas face cumulative exposure to multiple pollutants. Adaptation plans can improve healthcare access and help to address social inequities.²

Older Adults

Extreme events that cause power outages or require evacuation can place older adults in danger. Proper emergency communication and checking in on seniors can save lives.²

Low Income Communities

Flooding and crowded shelter conditions can lead to physical and mental illness. Disaster management plans can help those with limited resources to be resilient.²



1. Climate Change and Health Equity. HHS.gov. <https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/index.html>. Last Reviewed May 6, 2022. Accessed December 7, 2023.,
2. Image Source: The Fourth National Climate Assessment,

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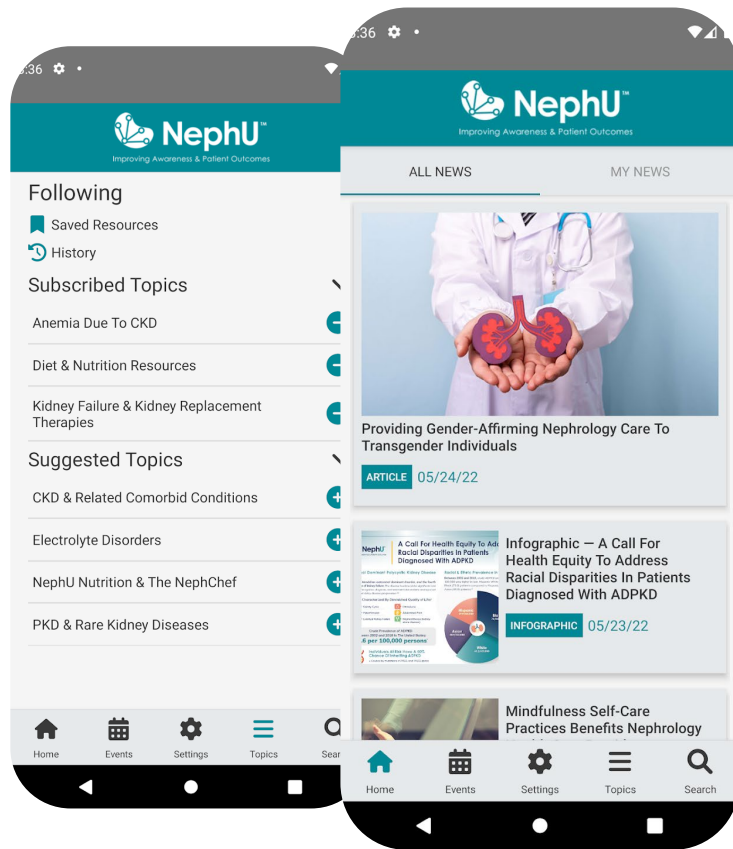
on March 9th, 2022

Reza Maghadam, PharmD, MBA
Executive Director, Head of Field Medical Affairs, OPDC

1 Contact Hour

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