

How Does Climate Change Impact Health?

Threats to health posed by climate change are multiple, severe, and increasing and can result in a spectrum of adverse health outcomes including disease, injury, nutritional deficit, and death. Here are some key findings from the U.S. Global Change Research Program (2016)¹:

- **Air quality will likely worsen due to increases in harmful pollutants, such as ground-level ozone, particulate matter, and airborne allergens.** Hotter and drier conditions also increase the risk of more intense wildfires and a longer wildfire season, further threatening air quality in communities where fires occur and in those downwind. Poor air quality contributes to worsening new and existing cases of asthma, increases in allergens and allergy symptoms, aggravation of chronic lung and cardiac diseases, and premature death.
- **Intensity and frequency of extreme heat events will worsen as temperature increases.** More extreme heat days and heat waves will increase the likelihood of temperature-related illness, such as heat stress exhaustion, heat cramps, heat stroke, and death.
- Rising temperatures and changes in precipitation **increase the potential for the spread of diseases carried by insects** (e.g. dengue fever, Zika, malaria, Lyme disease).
- More intense and severe droughts and heavier periods of precipitation, rising sea level, and severe storm surges that contribute to flooding can **impact water quality and food supply, increasing potential for water and food-related illnesses.** Flooding can damage essential infrastructure and also cause mold in buildings and homes, jeopardizing indoor air quality.
- **Certain groups are more severely impacted by climate-related risks** and extreme events, including children and pregnant women, older adults, those with chronic conditions and disabilities, low-income communities, some communities of color, immigrant groups (including those with limited English proficiency), and indigenous populations.
- **Impacts to mental health and well-being** can result from extreme weather events, natural disasters, and community displacement.² Learn more how climate change affects mental health from the guide [Mental Health and Our Changing Climate](#).

Opportunities for Advocacy on Climate Change

Our energy choices not only affect the amount of greenhouse gases (GHG) emitted, but some sources directly harm human health. Burning fossil fuels (e.g. oil, coal, and natural gas) for energy releases carbon, which worsens climate change and air pollution, contributing to health risks, especially for workers and local communities. There are considerable health and climate benefits to transitioning to 100% clean energy, such as wind and solar. In addition, transitioning to a clean energy is both practical and feasible. To learn about the benefits of clean energy, check out ecoAmerica's clean energy [talking points](#). To further help support a transition to 100% clean energy, below are some specific regulations that promote cleaner forms of energy and help move climate action forward, with the ultimate goal of a clean energy future for all.

Clean Power Plan & Health

Until recently, power plants were the largest single source of carbon pollution in the United States (U.S.). Now, power plants and the transportation sector are the two leading sources of carbon emissions, 28.4% and 28.5% of GHG emissions respectively.³ The Clean Power Plan, finalized in 2015, sets the first ever national power plant carbon pollution standards aimed at reducing climate-destabilizing emissions and other hazardous air pollutants. Currently, there are standards set for toxics, acid gases, heavy metals, and smog and soot-forming emissions from power plants to protect health. Standards on carbon pollution are no different; they also set clear expectations for the next generation of power plants to ensure that they are the cleanest, most efficient, and modern power plants.

Once fully implemented the U.S. Environmental Protection Agency (EPA) estimates that the Clean Power Plan would have significant climate and health benefits, including reducing carbon pollution in the power sector by an estimated 32% below 2005 levels and each year preventing:

- 3,6000 premature deaths
- 1,700 heart attacks
- 90,000 asthma attacks
- 300,000 missed workdays and schooldays⁴

TAKE ACTION! In 2017, EPA announced a proposal to repeal and replace the Clean Power Plan. The replacement plan (not yet released) will likely be much weaker, so it's important for nurses to participate in public hearings and comments periods to express support for strong regulations on carbon emissions from power plants once the plan is made public. You can also contact your members of Congress letting them know you support full implementation of the Clean Power Plan and clean energy legislation.

Clean Cars & Health

The transportation sector contributes 28.5 percent of total carbon emissions in the U.S. and is responsible for other harmful air pollution that threatens health.⁵ There are local solutions that promote healthy community design and more active forms of transportation to help reduce emissions (learn more with this [factsheet](#)), however creating more fuel efficient vehicles also help move us towards our goal of a clean energy future. In 1975, Congress established the National Corporate Average Fuel Economy (CAFE) standards with the aim of spurring innovation to make more fuel-efficient cars, therefore reducing energy consumption. Congress granted the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) authority to set and enforce these standards for light-duty vehicles.

To further improve these standards, EPA and NHTSA established a national program that aligns EPA's authority to regulate national GHG emissions under the Clean Air Act and NHTSA's authority to regulate CAFE standards. The program establishes nation-wide vehicle emission standards that create more fuel-efficient vehicles and provide necessary health protections. In 2017, after extensive research and review of input from various stakeholders—automakers, environmental groups and the public, the EPA issued a Final Determination finalizing standards for light-duty vehicles up to model years 2025. The finalized

standards were noted by EPA to be economically and technologically feasible and beneficial to consumers⁶, providing health benefits and cost savings.

TAKE ACTION! Ignoring science and public health, the Trump Administration's EPA is attempting to weaken clean air and climate protections. Express your support for strong clean cars standards by contacting your members of Congress and submitting letters to the editor to your local newspaper. Make sure you emphasize how strong standards help protect health!

Methane Pollution & Health

Every year, during oil and gas production, millions of metric tons of methane, a potent GHG, are leaked into the air. Methane is the second most prevalent GHG emitted by human activities in the U.S., and roughly one-third of those emissions comes from oil production and the production, processing, transmission, and storage of natural gas.⁷ In addition, methane has over 80 times the warming power of carbon dioxide, making it a major driver of climate disruption in the short-term (over 20 years).⁸ Emissions of methane not only worsen climate change, but when this gas is leaked other toxic and carcinogenic air pollutants, such as benzene and volatile organic compounds (VOCs), are also released.

Finalized in 2016, EPA's Methane Rule (New Source Performance Standards and Permitting Requirements) aims to limit the release of methane emissions from the oil and gas industry by reducing flaring, venting, and leakage of methane from new, modified, and reconstructed sources. This rule alone would reduce methane waste by 510,000 short tons (equivalent to reducing 11 million metric tons of carbon dioxide), resulting in climate benefits of \$690 million by 2025.⁹

TAKE ACTION! EPA has announced a two-year delay in implementation of the EPA methane rule. Delaying this rule means communities will continue to be exposed to dangerous air pollutants that harm health and worsen climate change. Express your support for this commonsense safeguard and climate action by contacting your members of Congress and submitting letters to the editor to your local newspaper.

Nurses Advocating for Clean Energy & Climate Solutions

Advocating for policies that clean up the air we breathe and reduce carbon pollution are essential to reduce climate impacts and improve public health. As trusted health professionals, nurses have the ability to advocate for strong clean air and energy policies that reduce dangerous pollution that harms health and worsens climate change. Nurses have been actively advocating for clean air protections and climate action, emphasizing the positive impact of strong environmental regulations on health (and the environment) by meeting or calling their elected officials to advocate for clean energy policies, participating in letter writing campaigns, submitting opinion pieces to local news outlets, giving interviews with the media, and providing testimony to the EPA and Congress. Effective communication when talking about climate change is essential. The [Let's Talk Climate and Health](#) guide provides useful tools to effectively engage others in climate solutions.

How to Advocate for Clean Energy & Climate Solutions

1. Learn more about how climate change and our energy choices impact health and what nurses can do:
 - Read the report [Climate Change, Health, and Nursing: A Call to Action](#).
 - Check out the [Climate and Health Toolkit](#) for nurses.
 - Visit [Climate for Health](#) for resources and guidance for health professionals.
 - Read [Getting Started with Solutions: A Guide for Nurses](#)
2. Talk with elected officials about the health benefits of climate solutions and transitioning to 100% clean and renewable forms of energy:
 - Schedule a meeting with members of Congress. Find your members of Congress here: <https://www.govtrack.us/congress/members>.
 - Call your senators and representatives about issues that matter to you: Call 202-456-1414 and asked to be connected to your policymaker.
3. Elevate the health voice on climate change:
 - Use social media, such as Facebook and Twitter, to engage others.
 - Submit letters to the editors and opinion editorials to local newspapers.
4. Talk with colleagues: Advocate and inspire others to act.

For more information, contact the Alliance of Nurses for Healthy Environments:

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This resource was made possible through our partnership with Climate for Health, a coalition of health leaders committed to caring for our climate to care for our health. Founded by ecoAmerica, Climate for Health offers tools, resources, and communications to demonstrate visible climate leadership, inspiring and empowering health leaders to speak about, act on and advocate for climate solutions.

¹ USGCRP. (2016). The impacts of climate change on human health in the United States: A scientific assessment. Crimmins, A., Balbus, J., Gamble, J.L., Beard, C.B., Bell, J.E., Dodgen, D., Eisen, R.J., Fann, N., Hawkins, M.D., Herring, S.C., Jantarasami, L., Mills, D.N., Saha, S., Sarofim, M.C., Trtani, J., & Ziska, L. (Eds.). Washington, DC: U.S. Global Change Research Program. <http://dx.doi.org/10.7930/J0R49NQX>

² Clayton, S., Manning, C. M., Krygman, K., & Speiser, M. (2017). *Mental health and our changing climate: Impacts, implications, and guidance*. Washington, D.C: American Psychological Association and ecoAmerica.

³ U.S. EPA (2017). *Sources of greenhouse gas emissions*. Retrieved from <https://bit.ly/2Mwlb94>

⁴ United States Environmental Protection Agency. (2016). *EPA's Clean Power Plan, Climate Change and Public Health*. Retrieved from <https://19january2017snapshot.epa.gov/sites/production/files/2016-04/documents/climate-change-public-health.pdf>

⁵ California Clean Cars Campaign. (2017). *State and federal clean cars standards: Good for consumers, the economy, our health, our climate*. Retrieved from http://calcleancars.org/wp-content/uploads/2017/09/States-Backgrounder_National-Standards9.6.pdf

⁶ U.S. EPA (2017). *Final determination on the appropriateness of the model year 2022-2025 light-duty vehicle greenhouse gas emissions standards under the midterm evaluation* (EPA Publication No. EPA-420-R-17-001). Retrieved from <https://bit.ly/2GD934g>

⁷ U.S. EPA. (2016). *EPA's actions to reduce methane emissions from the oil and natural gas industry: Final rules and draft information collection request*. Retrieved from <https://www.epa.gov/sites/production/files/2016-09/documents/nsps-overview-fs.pdf>

⁸ IPCC. (2013). *Climate change 2013: The physical science basis*. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf

⁹ U.S. EPA. (2016).