"Under The Weather": The Practice of Radiology In the Time of Climate Change: Issues, Challenges and Solutions

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BACKGROUND

Recent extreme weather events linked to climate change, such as the California wildfires and hurricanes in Puerto Rico, proved how natural disasters can massively interrupt healthcare services. The collapsed electric grid, damaged infrastructure, and hospital evacuations in Puerto Rico made it evident that hospitals are currently ill-equipped to handle natural disasters. In these circumstances, radiologists operated with limited equipment, no electricity, and limited telecommunications in a time where many patients were critically ill.

While these disasters were extremely unfortunate, much was learned and we now realize that radiologists can play a unique role in combating climate change. The US healthcare sector is responsible for an estimated 8% of the nation's carbon emissions. Medical imaging is estimated to account for 1% of greenhouse gas emissions worldwide.

This project will detail negative impacts climate change can have on modern day radiology, as well as provide a framework for radiologists to lead sustainable initiatives in the community.

PURPOSE

-Discuss the impacts of climate change on modern day radiology

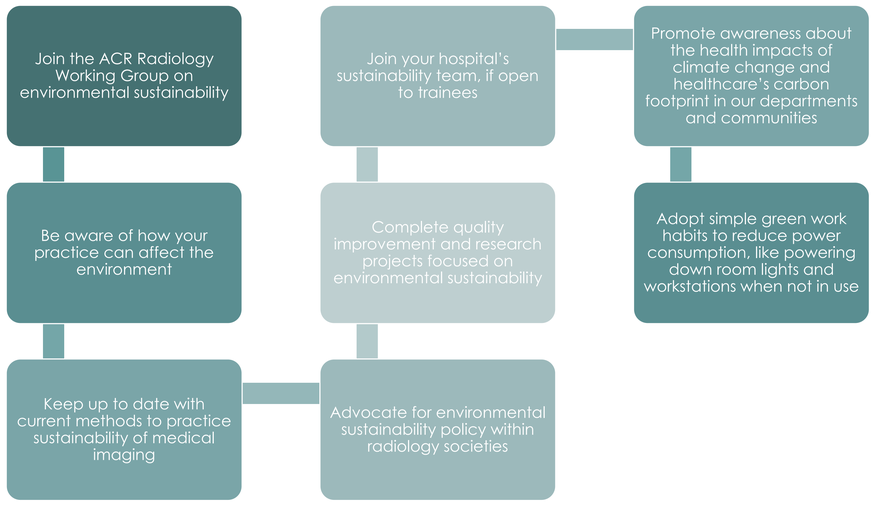
-Discuss various methods to prepare for the effects of climate change in the radiology workplace.

METHODS

We reviewed the literature and analyzed recent natural disasters and how they limited patient access to medical imaging, as well as how radiologists can respond quickly to these events.

RESULTS

How Residents Can Support Sustainability in Radiology



RESULTS CONTINUED

-**Scheduling patients efficiently** during operating hours can limit equipment idle time, allowing energy to be used more efficiently
-Utilizing **energy saving measures** and working with engineering companies to develop more useful energy saving measures can significantly reduce the carbon footprint produced by imaging equipment
-**Energy-efficient PACS stations** may seem like a small change, but can have a profound impact on radiology's carbon footprint when accounting for the number of PACS stations in the world
-**Interventional procedures produce many solid waste products** due to the high volume of short cases and use of primarily single-use materials such as catheters, sheaths, wires, devices, coils, sterile drapes, and sterile towels. Further research is needed in this area to create more sustainable interventional radiology materials
-**Baseline carbon footprints** need to be established for the current production of radiology-related materials, such as imaging machinery, PACS stations, intravenous contrast, etc.
-**Sustainability curriculum** and **advocacy** is necessary on an institutional, national, and international level to continue progress

CONCLUSIONS

Climate change has caused disastrous consequences for patients and healthcare in recent years. Radiologists can play a unique role in understanding and preparing for climate change and adopting to the various scenarios.

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