

Green Nephrology: Promoting Sustainability in Healthcare

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Received Feb 15, 2025, accepted May 5, 2025
DOI: 10.53778/pjkd92288
PJKD 2025:9(2):3-4

Climate change is a serious threat to human health, affecting not just the natural environment but also all aspects of human and ecological systems. As a result, it exacerbates existing issues, threatening to undermine and even reverse years of progress in health and well-being. Pakistan, like many other countries, has seen the disastrous effects of climate change, with catastrophic floods, droughts, and cyclones becoming more common. The 2010 floods killed over 1,600 people and cost over \$10 billion in damage, while the 2015 Karachi heat wave killed over 1,200 people.¹ In 2022, flood impacts one-third of the country, affecting 33 million people.² The calamity is unprecedented in Pakistan, surpassing the damage from the 2010 floods. As climate change exacerbates natural hazards, the frequency and intensity of such catastrophes are expected to grow in the future decades. These environmental problems put further strain on already fragile healthcare systems, emphasizing the importance of sustainable practices, particularly in resource-intensive specialties such as nephrology.

The healthcare sector accounts for approximately 5% of global CO₂ emissions,³ with dialysis services representing a substantial source due to their high resource demands.⁴ According to Agar et al., a 4-hour hemodialysis session with a dialysate flow rate (Qd) of 500 mL/min uses approximately 408 liters of water per treatment, with an additional 34 liters consumed during the 20-minute priming phase and 51 liters during the 30-minute rinsing phase.⁵ Piccoli GB et al., observed that the plastic waste generated per dialysis session ranges from 1.5 to 8 kg, including 1.1 to 8 kg of potentially hazardous waste, depending on the type of dialysis machine, the supplies used, and waste differentiation and emptying policies.⁶

Green Nephrology stresses sustainable approaches to reduce environmental effect while providing great care to patients.⁷ Fortunately, Green Nephrology provides practical solutions to these obstacles such as Dialysis centers throughout the world are using methods to recapture and reuse water, considerably reducing demand, transitioning to reusable alternatives reduces trash. Countries such as the Australia have led the way in these initiatives, establishing standards for environmentally friendly nephrology techniques that may be applied worldwide.⁸

Pakistan Society of Nephrology must take a leading role in promoting sustainable practices. It is vital to educate staff and patients on the environmental impact of dialysis as well as the benefits of green

practices. Collaborations between pharmaceutical's companies and the Ministry of Environment can help to create sustainable solutions for renal therapy.

As nephrologists, our responsibilities go beyond patient treatment. We are caretakers of both human and environmental health. By incorporating sustainability into everyday operations, we can lower nephrology's environmental footprint while still providing life-saving therapies.

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