Policy Imperatives to Drive Environmentally Sustainable Dialysis

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DISCLOSURES

- Health Policy Scholar in Residence 2024-2025, ASN
- Chair, Policy & Advocacy Committee, ASN

OBJECTIVES

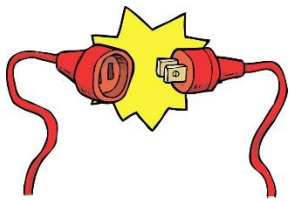
Planning a Policy Brief:

- Define the problem and urgency
- Promote key areas for intervention
- Share global policy initiatives
- Outline challenges to implementation
- Develop policy recommendations

Defining the problem: Large Environmental Footprint

Current estimates ~3.3million on dialysis worldwide > 5 million by 2030

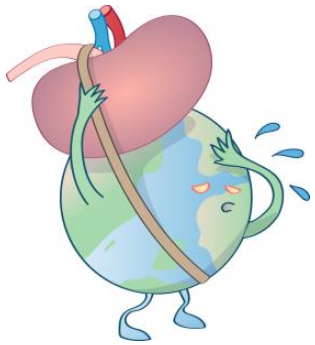
- Water consumption > 450 billion L annually
- Energy consumption per facility ~100 homes, 3-fold variability, large greenhouse gas emissions 24 – 65kg CO2/HD, variability in calculations – need for uniform data
- Massive waste generation: medical waste, plastics, dialyzers, blood lines, cartridges, hazardous waste, packaging – over 625,000 tonnes annually
- Carbon emissions: manufacturing, transportation, patient travel, facility operations

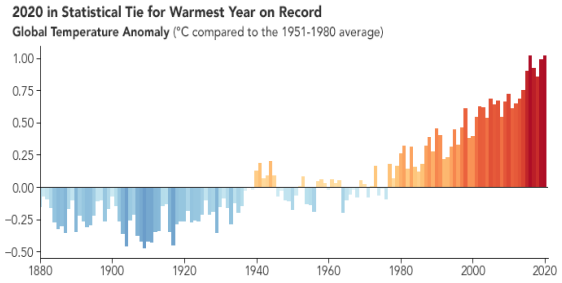


Agar, Hemodial Int, 2012
FMC Annual Report, 2018, 2023
Barraclough, Nat Rev Nephrol 2020
Luyckx, Nat Rev Nephrol, 2021
Sehgal, JASN, 2022
Hmida, KI, 2023
Barraclough, KI Reports 2024
Watnick, Curr Opp Nephrol HTN, 2025

UNDERSTANDING THE URGENCY: WHY DOES IT MATTER

- Growing CKD burden globally: aging populations, rising risk of diabetes and hypertension
- Resource scarcity in a constrained world: sustainable practices crucial for long-term viability of dialysis services
- Climate change impacts: exacerbating kidney disease, disrupting the healthcare systems. Reducing carbon footprint contributes to broader climate mitigations efforts
- Ethical responsibility: to minimize environmental impact while providing safe, effective, high-quality patient care





UN 2023 Water Conference, New York
Carney, Nat Rev Nephrol, 2020
Bibkov, Lancet, 2020
UN World Water Development Report, 2023

PROMOTING KEY AREAS FOR INTERVENTION

- A GREEN Dialysis journey must incorporate facility, organizational and health care system buy-in
- The PATIENT must be at the center of discussion and change management

PROMOTING KEY AREAS FOR INTERVENTION

- **Water Management**
  - Policies for use of efficient RO systems, optimize settings, regulations encourage reject water recycling for non-clinical uses, incentivize adoption of dialysate regeneration technologies
- **Energy efficiency**
  - Building codes for standards for energy-efficient dialysis centers (insulation, HVAC, LED), renewable energy resources to power facility, energy-efficient machines/equipment, promoting home dialysis modalities where there can be a lower energy footprint
- **Waste reduction and management**
  - Regulations for use of reusable or recycleable materials where safe/feasible, mandatory segregation and recycling in centers,

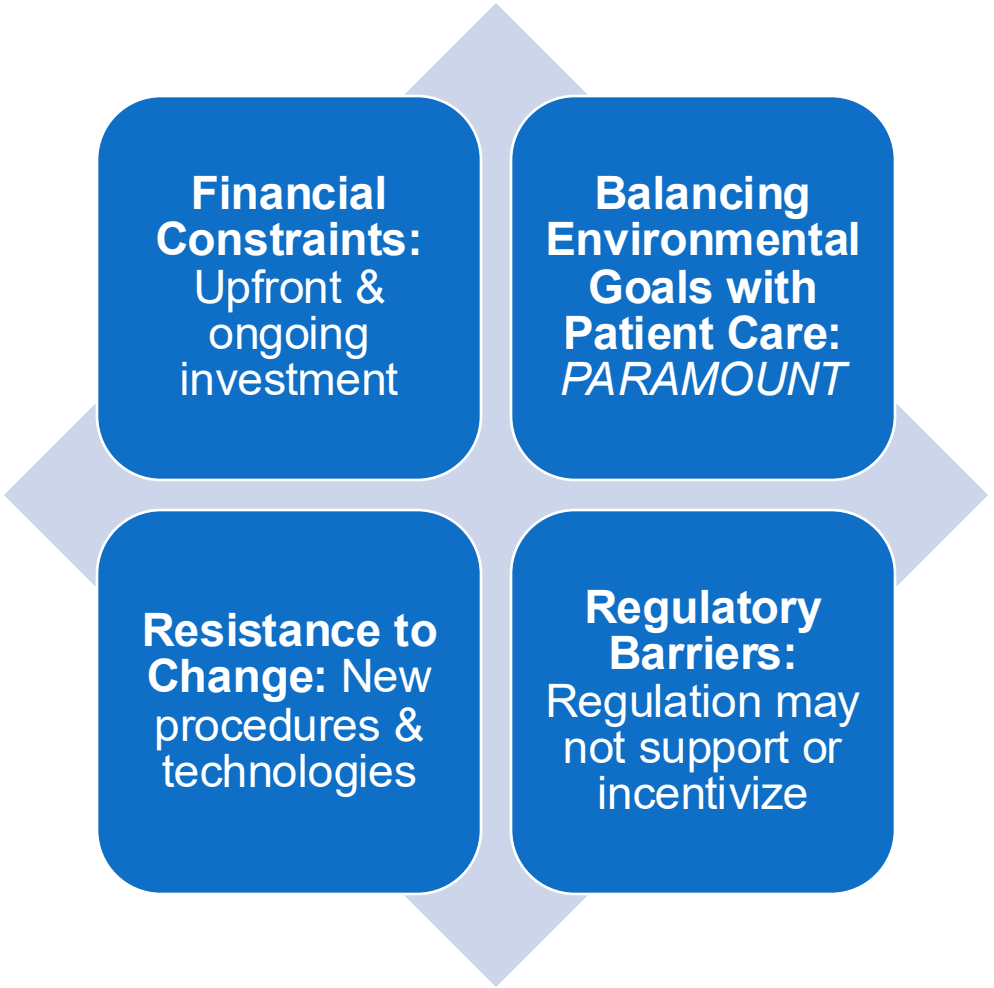
PROMOTING KEY AREAS FOR INTERVENTION

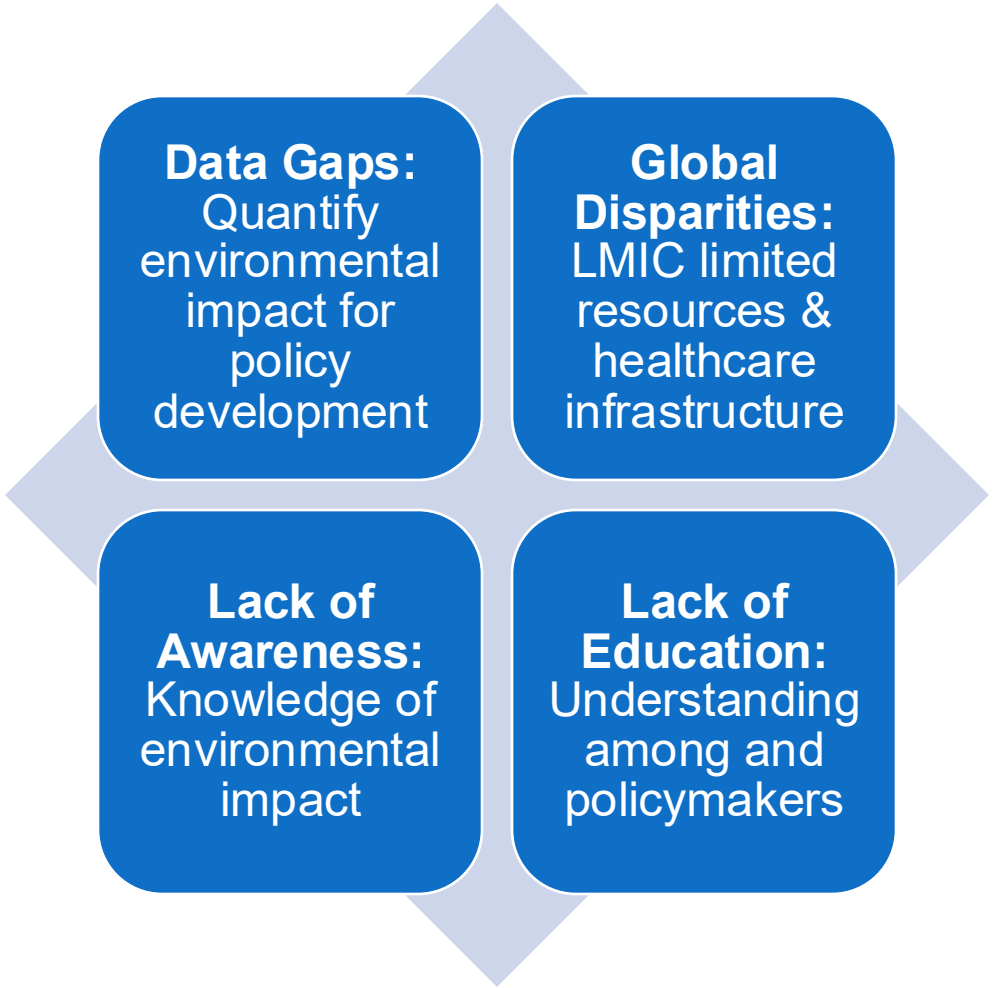
- **Sustainable procurement**
  - Government and healthcare system procurement policies to prioritize environmentally friendly products and suppliers, use Life Cycle Assessment (LCA) for procurement decisions to evaluate environmental impact
- **Research and innovation**
  - Procure funding for R&D of green dialysis technologies and practices, support policies that adopt innovative solutions, e.g. portable and waterless systems
- **Education and awareness**
  - Integrate environmental sustainability into training, conduct public awareness campaigns to education patients and general kidney community about green dialysis initiatives
- ****Dialysis Avoidance**:
  - Improve upstream and downstream care (avoid/slow CKD, increase transplant)

Sharing Global Policy Initiatives

- **International Society of Nephrology (ISN):**
  - GREEN-K initiative – environmentally sustainable kidney care thru advocacy, education, collaboration – e.g. ASN, ANZSN, CSN, ERA, SLANH, AFRAN…. Many tools, resources.
- **United Kingdom:**
  - Sustainable Kidney Care Committee addressing environmental impact of kidney care with NHS net-zero goal. Data collection, education, climate resilience
- **European Union:**
  - The KitNewCare initiative to decarbonize EU healthcare (including kidney care). Implement benchmarks, interventions, align EU initiatives.
- **National Guidelines:**
  - Incorporate in dialysis guidelines & best practice (e.g., ISN, FSN's "Towards Green Dialysis: Good Practice Guide", ASN launched Emergency Partnership Initiative).
- **KidneyX Sustainability Prize:**
  - Initiative by US DHHS, ASN for innovation in sustainable kidney care technology.
- **KDIGO Controversies Conference on Green Dialysis**

OUTLINING CHALLENGES TO IMPLEMENTATION





Developing Policy Recs: Shovel Ready Examples

Action	More Granular Examples
Develop National Green Dialysis Strategies	By 2026 designate expert groups to create country's Green Dialysis policy, issue statements on climate/kidney hlth - ASN
Incentivize Sustainable Practices	Parent org tax breaks if facility uses 10% less water and power over 5 y, $ to offset carbon footprint of (ASN) meeting
Establish Clear Regulations and Standards	Develop with experts around water and energy use, waste management and procurement, adopted by regulatory agency
Promote Collaboration and Knowledge Sharing	Create/harness national/regional group to reg. convene & disseminate info: patients, providers, govt, policymakers etc…
Invest in Research and Development	Identify (e.g.) Congressional champions to allocate annual funds with public-private partnerships – KidneyX as example
Integrate Sustainability into Quality Frameworks	Create international quality metrics (e.g. water use, waste, CO2 generation) & require metric reporting w bonus/penalties
Support Low- and Middle-Income Countries	Any international efforts decrease requirement stringency, e.g. quality benchmarks w less financial penalty, lower benchmark

Conclusion: Policy Imperatives to Drive Environmentally Sustainable D

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"I think everything we scientists do can be undermined in the eyes of the policymaker and the broader public. We (must) understand how to use our own science to make better policies."

– David List, Professor of Economics, White House Advisor, Environment & Resource Issues 2002-04, Freakonomics podcast 2025

THANK YOU

ASN
American Society of Nephrology

Division of Nephrology
University of Washington

VA
U.S. Department of Veterans Affairs
Veterans Health Administration
VA Puget Sound Health Care System

QUESTIONS?

KDIGO
Kidney Disease: Improving Global Outcomes