

# Sustainability in Veterinary Medicine

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Climate Crisis =  
Health Crisis



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Climate Crisis =  
Health Crisis

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ANIMAL



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1. Connection between profession and environment
2. Framework for more sustainable clinics
3. Opportunities for action and engagement

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## Environment → Animal Health



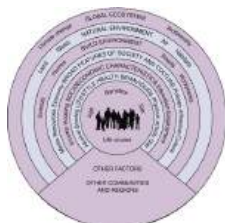
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## Environment → Animal Health



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## Environment → Animal Health



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## Renewed Concern: Profession

**Climate Change and Veterinary Medicine: Action is needed to retain social relevance**

Craig Stephen, Maud Carron, Barry Stenehjem



**Veterinarians in a Changing Global Climate: Educational Disconnect and a Path Forward**

Colin G. Reuter, Katherine A. McCall, 2023 and Catherine G. Duncan



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## Renewed Concern: Profession

- Elevated concern
- Animal health threat → future
- Lack of educational programming
- Importance of 'learning by doing'



**Preparing Veterinarians to Address the Health Impacts of Climate Change: Student Perceptions, Knowledge Gaps, and Opportunities**

James P. Hargrett, James C. Hargrett, Edward S. Hargrett, Katherine A. McCall, Catherine G. Duncan, Colin G. Reuter, Maud Carron, Barry Stenehjem, Emily D. Stenehjem, Robert S. Stenehjem, Ashley L. Stenehjem, Catherine G. Duncan

**Environmental Sustainability in Veterinary Medicine: An Opportunity for Teaching Hospitals**

Stephanie C. Hargrett, James P. Hargrett, Edward S. Hargrett, Katherine A. McCall, Catherine G. Duncan, Colin G. Reuter, Maud Carron, Barry Stenehjem, Emily D. Stenehjem, Robert S. Stenehjem, Ashley L. Stenehjem, Catherine G. Duncan

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## Renewed Concern: Profession

**THE PLANETARY HEALTH REPORT CARD**

An international health student community inspiring institutional change.

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## Provision of Health Care

- Healthcare emissions worldwide: 1%-5% of global total
- USA:
  - ~7-10% GHG emissions
  - 12% acid rain
  - 10% smog formation
  - 9% criteria air pollutants
  - 1% stratospheric ozone depletion
  - 1-2% carcinogenic & non-carcinogenic air toxics
  - 470,000 DALYs lost from pollution-related disease
- No correlation between footprint & health outcomes



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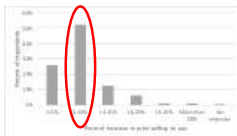
## Renewed Concern: Clients



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## Renewed Concern: Clients

- Pet health concern
- Veterinary teams: knowledge programs
- Value teams with specialty training



Client Choice May Provide an Economic Incentive for Veterinary Practices to Invest in Sustainable Infrastructure and Climate Change Education



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## Sustainability

'Maintaining the earth's environmental quality, functionality, and services to meet the human needs of today without compromising the needs of future generations'

- UN Brundtland Commission, 1987

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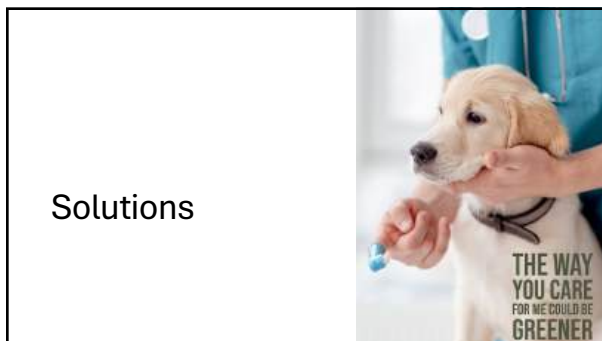
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## Energy: Use Clean







POWER YOUR TEAM IN A RENEWABLE WAY


 Sustainability by Alliance



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## Energy: Use Less & Use Electric

Introduction

**How Health Care Organizations Can Use the Inflation Reduction Act to Reduce Costs, Enhance Resilience, and Lower Their Environmental Footprint**

*Colleen Kaskela, National Director of Analytics, W&A Systems, MBA, JD, LL.M., University of Arizona, Phoenix, AZ*

*Andrew Harberg, PhD, MS, Health Care Without Walls, Bard Graduate Institute, New York, NY*

*Dr. Melissa B. Greenberg, and Marissa Whiting, MD, of the National Academies of Medicine's Action Collaborative on Decarbonizing Health Systems Research*

November 29, 2023












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# Waste

- Trash is unavoidable → **WASTE LESS**
- Hospitals:
  - ~1% of solid waste in developed countries
  - ~1/3 originates in operating rooms
- Fate of waste variable by location
- Medical waste: non-hazardous vs hazardous
- Co-benefits
  - Team goals
  - Reduction & better waste segregation → \$\$\$ savings



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 **Waste**

**Waste not want not: piloting a clinical waste audit at a United States university veterinary teaching hospital**


Claudia M. Bero-Arley BA, Melissa R. Hollibaugh MS, Tanya S. Moulton MS, Victoria L. Corcoran MS, Nancy Neaseggen MSMA, Gregg M. Stillewag MS, DVM, and Colleen Strahan DVM, PhD

DOI: <https://doi.org/10.2400/2020.22112495>






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 **Waste: Reduce**


- Human ORs: ~80% generated before patient arrival
- Surgery specific supply pick lists → ~45% reduction/case
- Reuse programs for send home equipment




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 **Waste: Reuse**

- Cloth clothing & drapes as appropriate
  - Surgical site infection research
  - Laundry: logistics, water, energy
- Sterilization containers vs. blue wrap
- Reusable sharps containers
- Reusable warming blankets
- Other opportunities
  - Training instruments
  - Creative clinical applications



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 **Waste: Recycle**

- NEVER step 1 !!!
- Education
  - Local/regional options
  - "Wishcycling"
- Expanded opportunities
  - Hard to recycle depots/shipping
  - Closed loop systems
  - Partnerships with human hospitals
- Switch → Biodegradable products



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 **Waste: Research**

- Veterinary medical specific gaps → solutions
  - Nature and quantity by sector
  - Collaborative audit activities
- Collaboration with human health sectors
  - Areas of overlap: Medical/surgical
  - Areas of difference: biologic waste % human food
- Behavior change research → support



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 **Pharmaceutical Waste**

- Responsible use of medicines
  - Antimicrobial & antiparasitic drugs → AMR
  - Emerging issues in ecotoxicology
- Avoid wastage: inventory management
- Drug distribution
  - Off site use/disposal
  - Containers
    - Plastic
    - Recyclable (metal, paper)
    - Biodegradable




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## Pharmaceutical Waste

**Veterinary anesthesia: an opportunity to reduce the environmental footprint of clinical care**

Lindsay Viole, MS, Josely Quintana, MS, Valeria Sanchez, MS, Danielle Scott, MEd, DVM, Gregg M. Griffling, DVM, MS, Colleen Duncan, DVM, PhD




April 2 LiveStream - 2 CE Hours - Reduced Anesthesia Impact on the Planet

Join us for a liveStream program on April 2 from 6:30 - 8:30 PM (via Zoom) with Dr. Gregg Griffling to learn about the impact of robust anesthesia on the climate. On demand viewing will be available through May 15.




[Register](#)

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## Transportation

- Support active & low emission employee transit
- Community resources → know & share
- Client/patient transportation (COVID lessons?)

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## Water

**General**

- Aeration of faucets
- Flow restriction devices
- Sensor faucets
- Maintain plumbing (leaks)
- Laundry: efficient / eco-friendly
- Landscaping:
  - Harvest and recycle rainwater
  - Drought-resistant/ adapted plants

**Medical**

- Autoclaves: retrofit (& electrical)
- Surgical scrubbing “elbow-on” tap → “leg-operated” tap saves 5.7 L of hot water/ surgical scrub



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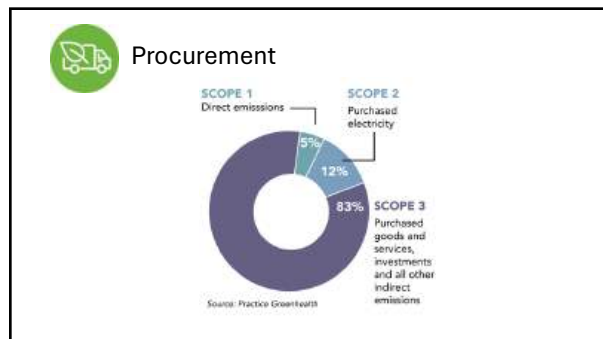


## Procurement

“Every time you spend money, you’re casting a vote for the kind of world you want.”

- Anna Lappé

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## Procurement: Policies



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### Procurement: Non-medical Certs

- Most of your stuff → solutions!
  - Appliances, electronics
  - Cleaning products
  - Office supplies
  - Paper/tissue supplies
  - Clothing
- Company vs product
- Pet supplies

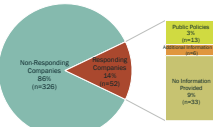
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### Procurement: Veterinary








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### Procurement: Veterinary



RESPONSE RATES AND INFORMATION OBTAINED ON SUSTAINABILITY FROM THE SUSTAINABLE PROCUREMENT SURVEY



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### Procurement: Veterinary

**Waste not want not: piloting a clinical waste audit at a United States university veterinary teaching hospital**

Caitleen M. Rens-Kelly, BA, MSW, & Elizabeth M. Tiers, B. MSW, MS, Veterinary Center MS, Heavy Resequen, MSW, George M. D'Onofrio, MS, DVM, and Colleen R. Rens, DVM, PhD

DOI: <https://doi.org/10.2460/journal.22.1.0495>

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### Procurement: Community

- Purchasing power
- Collaborate
  - Suppliers
  - Distributors
  - Local/regional clinics
- Share expectations of your team
  - Networks
  - Professional societies




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### Procurement: Logistics

- Front-line problems
- Economic order quantities → bang for carbon buck
- Inventory management
- Shipping policies
- Does it need to be new?
  - Share systems
  - Used market



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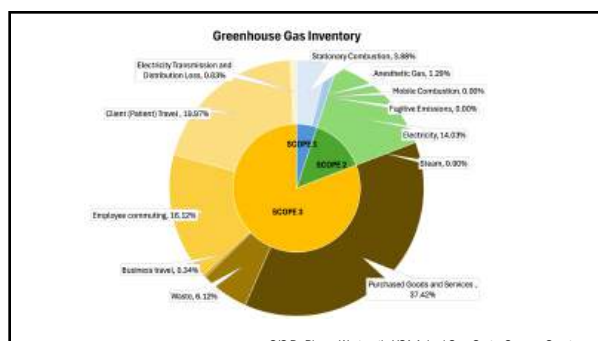
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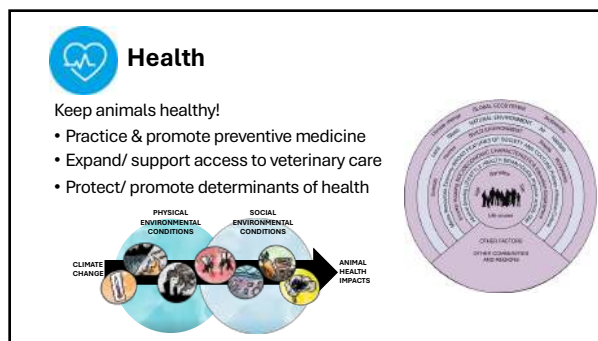
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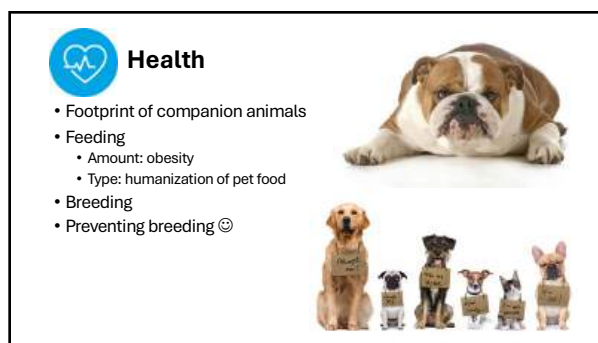
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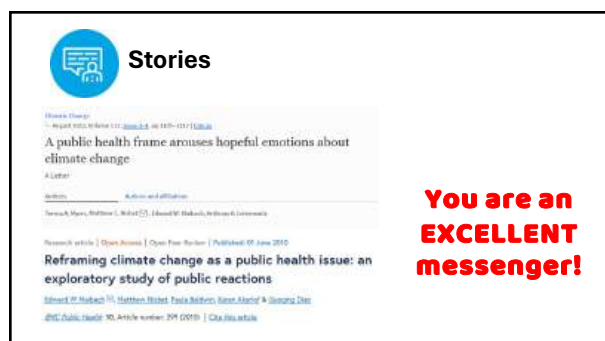
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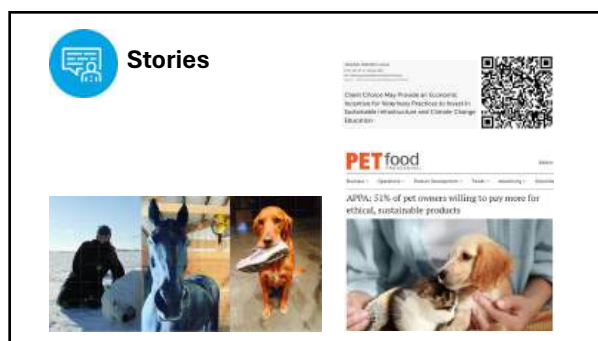
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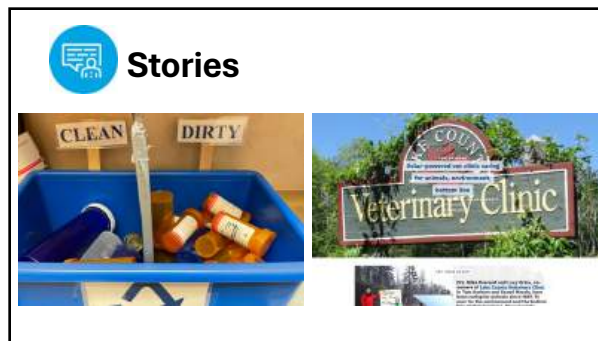
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**Policies**



Empowering Veterinarians to Be Planetary Health Stewards Through Policy and Practice  
(Shaw-Klein, William E. Barakat, and Orlene Dwyer)



Climate change and related sustainability issues

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**Policies**

- Engage → ensure animal health is prioritized
- Veterinary involvement in emerging markets
- Ensure that gains in efficiency → OVERALL impact reductions
- Recognize short / medium / long-term goals
- Awareness of consumer markets and veterinary/health related values

Animal welfare is a stronger determinant of public support for meat taxation than climate change mitigation in Germany  
Stefanie Peters & Ingrid Isenhardt  
Meat & Food 4, 161-169 (2019) | Cite this article

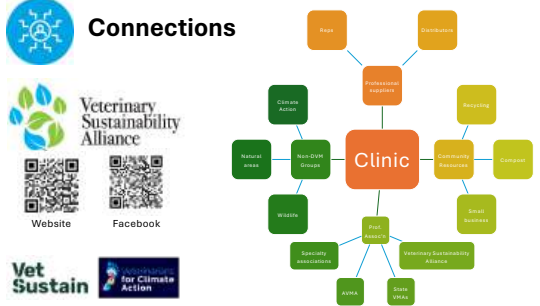
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**Nature**



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**Connections**



Veterinary Sustainability Alliance

Website Facebook

Vet Sustain



Advocates for Climate Action

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**THANK YOU**

**“The most effective way to get out of this mess is to educate ourselves”**

- Greta Thunberg

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