


Nursing Practice and Environmental Health

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Presenter Disclosures


Elizabeth Schenk, PhD, MHI, RN

(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose


Practice Workgroup

- Chair
 - Elizabeth Schenk, PhD, MHI, RN
- ANHE Support
 - Katie Huffling, MS, RN, CNM
- Shared Leadership
 - Healthcare Without Harm Nurses' Working Group
 - Kelli Barber, MSN, RN
 - Mary Margaret Thomas, MSN, RN




Practice Issues

- Address EH in Nursing Practice
 - How do environmental issues impact health?
 - How does nursing practice impact the environment?



ANA Scope and Standards of Practice

Standard 16:
The registered nurse practices in an environmentally safe and healthy manner.



Environmental Impacts **ON** Health

- Acute Care
 - Asthma, heat related illness, allergies, skin disorders, cancer
- Reproductive Health
 - Infertility, neonatal health impacts
- Community Health
 - Air and water quality, fires, flooding
- Home Health
 - Home exposures, radon, chemicals

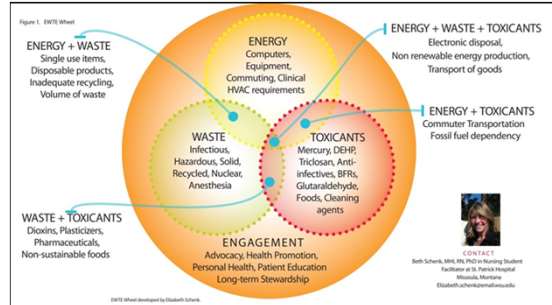


Environmental Impacts OF Healthcare and Nursing Practice

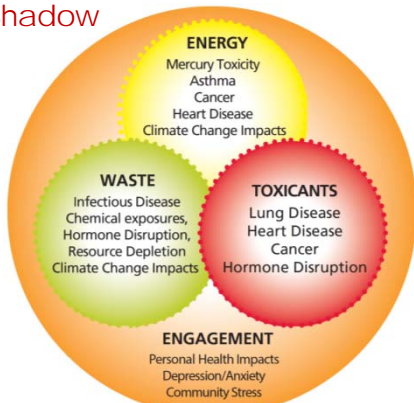
- Acute Care
- Community Health
- Home Health
- Education



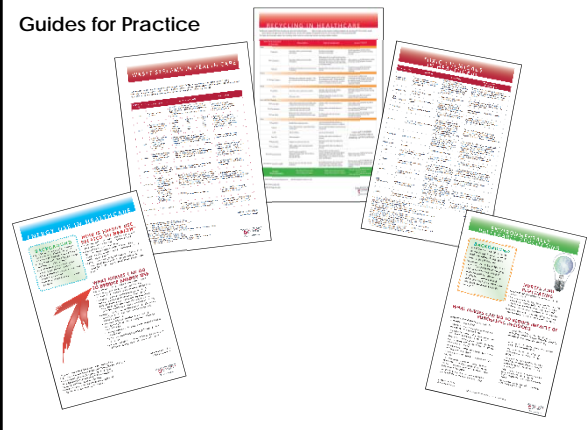
EWT-E Wheel



EWT-E Shadow



Guides for Practice



ENERGY USE IN HEALTHCARE

BACKGROUND

- According to the EPA, inpatient healthcare ranks as the second largest commercial energy user after the food service industry.¹
- Hospitals average 2.7 times the gross energy use intensity of office buildings.²
- The US meets 85 percent of our energy needs through burning fossil fuels.³
- It is estimated that in the US we waste more than half of our energy.⁴
- Occupancy behavior significantly impacts energy use.¹

HOW IS ENERGY USE RELATED TO HEALTH?

- Burning fossil fuels causes carbon dioxide to accumulate in atmosphere, which is associated with climate change.
- Climate Change impacts health around the world, by increasing respiratory disease, cardiac disease, infectious disease, flooding, desertification, loss of arable soils, and more.⁶
- Pollution from power plants, including sulfur dioxide, heavy metals, and others affects neurological development, contributes to cancer, asthma and other lung disease, heart disease.⁷

WHAT NURSES CAN DO TO REDUCE ENERGY USE

WHAT NURSES CAN DO TO REDUCE ENERGY USE

- Work with green teams to address conservation measures
- When making purchasing decisions about nursing equipment, include energy efficiency as purchasing criteria
- Establish occupancy behaviors in work spaces; turn off lights and monitors when not in use, unplug electric beds between uses, have plan for shutting down energy needs of unoccupied rooms (turn off lights, turn down thermostats, open blinds in winter, close blinds in summer)
- Establish quiet time during afternoon and turn lights down. Insure lights are down at night, both for energy savings and better patient rest.
- Encourage work site to establish computer power management plan to conserve energy use of electronics when not in use
- Encourage work site to install occupancy sensors for lighting where possible.
- Establish processes to unplug rechargeable devices when fully charged.
- Join your organization's commuter club, reduce the number of single occupancy vehicle trips taken to get to work

WASTE STREAMS IN HEALTH CARE

Healthcare produces a tremendous amount of waste. Hospitals in the US create 6000 tons of waste per day (NHL, 2010). The healthcare waste stream is complex, with multiple sub-streams. Environmentally appropriate sorting practice includes proper segregation and disposal of waste, and can impact decisions leading to less production of waste.

Category of Waste	Treatment/Disposal	Environmental Impacts	How to Impact
Solid	Typically land filled or incinerated	Incineration releases dioxin, mercury, lead and other pollutants. Most of upper incinerators have declined since 2000 from 2000 to fewer than 100 incinerators. Landfill waste leachate releases, leading to groundwater depletion.	Reduce disposable products, avoid overuse or mistaken use of healthcare products, divert more waste to recycling stream.
Recycling	Each material is sold to different buyers. They are repurchased and used in manufacturing for new products.	Material recovered: 90% 21% 42% 76% 86% Energy saved: 21% 25% 31% 41% % recycled in US: 25% 29% 31% 41%	Recycle all you can. Sort waste effectively. Encourage your practice settings to provide containers and processes for recycling. Look for additional products and materials your workplace can recycle.
Compost	Food waste, landscape waste, some paper products can be composted by large scale composters. Not common yet.	This compostable waste, if in a landfill, releases potentially toxic leachate. 21 tons more potent as a greenhouse gas than Carbon dioxide. If composted, it biodegrades aerobically producing no methane. (see, 2012)	Encourage your practice setting to compost. Sort waste effectively.
Infectious	Typically autoclaved and landfilled, treated with disinfecting chemicals, or incinerated.	Autoclaving is energy intensive but effective. Chemical disinfection uses harsh and sometimes toxic chemicals. Incineration releases toxicants into air above all treatments are expensive.	Sort waste effectively. All sharps, body tissues, cultures, infectious stocks, blood are infectious waste. Lightly soiled bloody bandages are not infectious waste, unless it is enough to drip or to flake off if dried. (EPA, 1992)
Hazardous	Typically handled by off-site land, transported to hazardous waste facility by licensed transporter.	Very high heat and high efficiency burners. Energy intensive, but do handle more effectively.	Learn what hazardous waste you work with, be careful with use and use appropriately.
Hazardous	Pharmaceuticals have been found in surface and ground		

How to impact

Reduce disposable products, avoid overuse or mistaken use of healthcare products, divert more waste to recycling stream.	Learn what hazardous waste you work with, be careful with it and sort appropriately.
Recycle all you can. Sort waste effectively. Encourage your practice settings to provide containers and processes for recycling. Look for additional products and materials your workplace can recycle.	Dispose of pharmaceutical waste properly. If your organization is not disposing of pharmaceutical waste safely, bring it to the attention of leaders.
Encourage your practice setting to compost. Sort waste effectively.	Know your policies for protecting yourself, including from body fluids exposed to nuclear materials.
Sort waste effectively. All sharps, body tissues, cultures, infectious stocks, blood are infectious waste. Lightly soiled bloody bandages are not infectious waste, unless it is enough to drip or to flake off if dried. (EPA, 1992)	Ask how your facility handles anesthesia gases, encourage leaders to capture and recycle the gases, letting none into the atmosphere.

RECYCLING IN HEALTHCARE

Healthcare creates 6000 tons of waste per day in the United States. Much of this can be recycled. Leading hospitals are recycling 60-70% of their overall waste streams, though most are recycling far less, if at all. The majority of hospitals in the US can increase their recycling dramatically. This table demonstrates options for recycling, which varies by community and the recycling market available.

Item to be recycled or diverted	Description	Typical Treatment	How to Impact
Paper			
Confidential	Any paper with any protected health information	Shredded and landfilled. Sometimes incinerated.	Careful segregation to protect privacy. Work with practice site to insure it is being recycled.
Non-Confidential	Any paper without protected health information	White paper of non-recycled content can be recycled up to seven times, worth collecting separately. May need to sort white, colored, newspaper and magazine paper, depending on recycling market.	Help establish recycling infrastructure, and to encourage careful segregation if needed.
Cardboard	Cardboard and cardboard commonly used in shipping	Typically baled and sold to recycles, some incinerate.	Find out how your practice site recycles cardboard, establish mechanisms for collecting.
Plastics			
#1 through #7 plastics	All plastics are numbered 1 through 7. This is a code that describes the type of plastic it is.	Recycling of plastics depends on the market in a community or area. In some areas, all or most plastics can be recycled. In others, only #1 or #2 plastics can be recycled.	Find out what is available in your community, and then what your practice site is currently recycling. Establish mechanisms for collecting what can be recycled, and segregate carefully.
Metals			
Spring Metals	Aluminum, brass, copper, iron, steel, etc.	Typically collected through facilities, and sold to recycles, some incinerate.	Insure that nurses provide ways to collect recyclable metals from items used in nursing practice.
Cans	Aluminum, steel	Collected separately, usually at locations throughout facility.	Insure that nurses collect cans used for patient nutrition on nursing units.
Items with Toxic Chemicals			
Fluorescent lights	Tubes and Compact Fluorescent bulbs both contain mercury and need to be recycled.	Facilities collect and safely deliver to recycler.	Insure bulbs are being properly recycled to protect public health.
Recyclable batteries	Lead acid and Ni-cad certain toxic. Chemicals and need to be recycled.	Shredded collects and safely delivers to recycler.	Insure all appropriate batteries are being recycled to protect public health.
Electronic Waste	Many electronic components contain hazardous chemicals and need to be safely recycled.	If staff regularly collect and recycle appropriately.	Insure that all electronics are being recycled and disposed of properly. Insure that recycler is reputable.

How to impact

Careful segregation to protect privacy. Work with practice site to insure it is being recycled.	Insure all appropriate batteries are being recycled to protect public health.
Help establish recycling infrastructure, and to encourage careful segregation if needed.	Insure that all electronics are being recycled and disposed of properly. Insure that recycler is reputable.
Find out how your practice site recycles cardboard, establish mechanisms for collecting.	Learn what is available in your community, help to establish collection pathways.
Find out what is available in your community, and then what your practice site is currently recycling. Establish mechanisms for collecting what can be recycled, and segregate carefully.	Work with vendor, OR staff and all nursing staff to collect these products.
Insure that nurses provide ways to collect recyclable metals from items used in nursing practice.	Find out what supplies are available, look into community sites that could use them, establish mechanisms for collection and delivery.
Insure that nurses collect cans used for patient nutrition on nursing units.	Ask for recycling report each quarter or year. Set unit level goals for recycling.
Insure that all electronics are being recycled and disposed of properly. Insure that recycler is reputable.	

TOXIC CHEMICALS IN HEALTHCARE

Toxic Chemical	How Used	Risks/Harms	How to protect self and others
Brominated Flame Retardants (BFR)	Present in many hospital products: furniture, carpeting, drapes, electronics, computers, monitors, microwaves, refrigerators, etc.	Thyroid hormone disruption, reproductive health effects. Impacts neurodevelopment in fetuses, chemical is transferred across placenta and breast milk. Toxic to fish and birds. Resistant to degradation in the environment. (Larsen, 2005)	Push organizations to use safer alternatives to BFRs. Fire suppression is important, especially in healthcare, and there are safer alternatives to BFRs. Learn about what is in the products you purchase for your home and family.
Cleaning Products	Bleaches, antimicrobials, waxes, polishes, soaps	Asthma, allergies, skin irritation, eye irritation. (Bills, et al, 2009)	Encourage organization to use lowest amount of cleaning chemicals necessary for infection control. Ensure adequate ventilation.
DEHP (Di-ethylhexylphthalate)	Solvent agent used in IV and other tubings	Reproductive toxicant, hormone disrupting chemical (phthalates). Neurotoxic exposure to high doses if an endocrine on SV (ACGIH, 2006)	Push organization to purchase DEHP free tubings and products.
Formaldehyde	Lab chemicals, fiberglass insulation, furniture	Cancer, bronchitis, allergies, asthma, eye damage, menstrual disorders (OGA, 2001)	Encourage organization to eliminate use of formaldehyde. Wear proper protective equipment if working directly with formaldehyde.
Fragrances	In air fresheners, personal care products, perfumes, scented tissues	Volatile organic compounds (VOC) associated with headaches, eye, throat irritation, nausea, dizziness, loss of coordination, asthma, migraines. Phthalates in perfumes are hormone disruptors. Staff can become more sensitive over time. Patients can be very sensitive. (Moukhan, et al, 2002)	Reduce and eliminate all perfumes. Encourage the enforcement of your organization's policy to be fragrance free, for your health and that of your patients. Avoid VOCs in the products you personally use.

How to protect self and others


Push organizations to use safer alternatives to BFRs. Fire suppression is important, especially in healthcare, and there are safer alternatives to BFRs. Learn about what is in the products you purchase for your home and family.	Push organization to use safer products. If using glutaraldehyde, insure proper ventilation and monitoring.
Encourage organization to use lowest amount of cleaning chemicals necessary for infection control. Ensure adequate ventilation.	Push organization to become mercury free. Report all spills for haz-mat clean up.
Push organization to purchase DEHP free tubings and products.	Push organization to move toward Integrated Pest Management (IPM) which leads to lower amounts of chemicals. Avoid pesticide and herbicide use at home. Remove shoes at door, shower after being exposed.
Encourage organization to eliminate use of formaldehyde. Wear proper protective equipment if working directly with formaldehyde.	Learn to read labels, both for soaps and lotions at work and in personal care products. Avoid phthalates.
Reduce and eliminate all perfumes. Encourage the enforcement of your organization's policy to be fragrance free, for your health and that of your patients. Avoid VOCs in the products you personally use.	Push organization to move toward PVC free products. There are other safer plastics, including polypropylene, polyurethane, silicone, and others.
	Push organization to use minimal amount necessary of antimicrobial product, and a safer chemical than triclosan. Watch for it in home products and avoid use.

ENVIRONMENTALLY PREFERABLE PURCHASING

BACKGROUND

All products that come into a practice setting undergo a process of decision making regarding which product, which vendor, at what price.

Environmentally Preferable Purchasing (EPP) is the act of purchasing products or services whose environmental impacts have been considered and found to be less damaging to the environment and human health when compared to competing products/services.¹



NURSES AND PURCHASING

A majority of products used in practice settings are used or touched by nurses.

Nurses are responsible for their professional practice, including the impacts of the products they use. Thus, if nurses are concerned about the health impacts of a product used in their practice, they need to speak up: their voice matters.

Nurses are involved in some purchasing decisions, on Shared Governance councils, or Value Analysis Teams, as examples.

WHAT NURSES CAN DO TO REDUCE IMPACTS OF PURCHASING DECISIONS

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Serve on a team that evaluates products.

Consider these aspects of EPP:


- How much waste does the product create? Can a product with less waste be chosen?
- Is the packaging reusable (hard shell totes, eg) or recyclable? If not, is there an option that is?
- What is the chemical exposure related to the product? Are patients exposed? Nurses and clinical staff? Workers where product is created?
- What is the energy efficiency of the product? Is there an Energy Star rated option?
- Can recycled content options be used (eg. for office supplies)?
- Can remanufactured options be used? Common opportunities include disposable blood pressure cuffs, sequential compression device sleeves, oximeter probes and a variety of OR supplies.
- Can efficiency of transportation and shipping be maximized? This saves energy, time and money.

If nurses do not have a role on purchasing committees, work to increase clinical presence in these decisions at your practice setting:

- Make case to leadership that nurses serve a valuable role on purchasing committees
- Make case to nursing, that delivery of environmentally safe care is a professional obligation
- Within nursing, create guidelines that assure safe delivery of care regarding toxic chemicals, responsible handling of waste, and responsible use of energy
- Address product selection in unit-based councils, and help create unit-based demonstration projects using products with fewer environmental impacts.
- Share results in newsletters, in the community, and in interested journals.

Sustainable Food Systems

- Healthier foods
- More local Foods
- Reduced Meat consumption
- Healthier beverages
- Farmer's Markets
- Community Supported Agriculture
- Gardens on Hospital Grounds




Engagement

- Nurse Involvement in efforts/projects
- Nursing leadership
- Nursing education
- Patient and community education
- Advocacy and policy
- Behavior change




Practice Workgroup

- Successes
 - EnviRN Content
 - 2012 Practice Webinar Series
 - Nurse Champions
 - Practically Green



Practice Workgroup

- Current Focus
 - Standard 16
 - Magnet
 - Climate Impacts



Practice Workgroup

- Getting Involved
 - Monthly call-in meetings
 - Second Tuesday 11 am Eastern
 - Tell us your story: blog, presentation on monthly call



Thank you

- Contact
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