The Nurse’s Role on Green Teams: An Environmental Health Opportunity

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Introduction
An environmental health standard was added to the American Nurses Association’s (ANAs) Second Edition of Nursing: Scopes and Standards of Practice (2010). This article will address several ways nurses can incorporate this standard into their practice.

It is often difficult for nurses working in the hospital to identify areas in which they can play an active role in promoting healthy environments. One area that nurses can make a difference regarding environmental health is establishing or becoming a member of a hospital “green team.” A green team is a multidisciplinary group of hospital employees who support and inform other staff in environmentally sustainable institutional practices. This is particularly important considering that U.S. hospitals generate more than 6,600 tons of trash a day and healthcare organizations utilize a great deal of energy, spending over $8.3 billion on energy a year (Practice Greenhealth, 2011). Reduction in the amount of hospital waste and energy use can positively impact hospitals financially and help to make healthier environments for the communities they serve. Nurses can also promote environmental health by influencing product selection and appropriate product disposal. Furthermore, hospital green teams support initiatives that create a healthier work environment for hospital staff (Johnson, 2010).

Getting Started
Some green teams have been started by nurses, but in many cases nurses serve as green team representatives (Mejia & Sattler, 2009). There are several organizations and resources that can support the team’s efforts (see Table 1). The Green Guide for Health Care (2008) provides two comprehensive guides to assist healthcare institutions in developing and maintaining environmentally sustainable buildings and practices.

Health Care Without Harm (HCWH) is an international collaborative of hospitals and health care professionals who share a vision of promoting healthy people and healthy environments. The Luminary Project of the Nurses Working Group of HCWH is a web site that provides information about nurses’ environmental projects along with nurses’ contact information. Nurses are able to contact the nurse who actually developed a specific environmental project. The Luminary Project web site can be useful to identify successful green team programs for your hospital. Practice Greenhealth is another organization that supports green initiatives within the health care sector. Institutional membership

**Table 1. Organizations to support green team development**

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<thead>
<tr>
<th>Organization</th>
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<tr>
<td>Alliance of Nurses for Healthy Environments</td>
<td>e-commons.org/anhe</td>
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<td></td>
<td>e-commons.org</td>
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<tr>
<td>Environmental Protection Agency</td>
<td><a href="http://www.epa.gov">www.epa.gov</a></td>
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<tr>
<td>Health Care Without Harm</td>
<td><a href="http://www.noharm.org">www.noharm.org</a></td>
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<tr>
<td>Practice Greenhealth</td>
<td><a href="http://www.practicegreenhealth.org">www.practicegreenhealth.org</a></td>
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<tr>
<td>The Luminary Project</td>
<td><a href="http://www.theluminaryproject.org">www.theluminaryproject.org</a></td>
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is required to join Practice Greenhealth. Another resource that can support your green team is the Alliance of Nurses for Healthy Environments (ANHE) and its associated website, e-commons.org. ANHE provides environmental health resources for nurses working in all fields of nursing.

The Nurse’s Role

In the hospital setting, most problems related to environmental health are complex and involve many departments. Health care providers who have initiated green practices in their institutions have recommended starting with small and quickly achievable projects so the hospital staff can see success (Same-Day Surgery, 2008). Small projects can evolve and subsequently have larger environmental and financial impact. For example, starting a recycling effort on your unit can lead to hospital-wide recycling that reduces landfill waste and trash hauling fees. As green team members, nurses can offer insight to each department related to their nursing practice.

Waste Reduction in the Hospital

Waste reduction is often the first task of a green team because positive changes can be observed quickly. Hospitals’ waste streams are more complex than most industries. Aside from the typical waste that would be part of general trash, hospitals also generate medical waste which is subject to federal, state and local regulations (Studnicki, 1992). Nurses can play an important role in stewardship of patient supplies and ensuring that waste related to patient care is placed in the proper receptacle. Regulated medical waste or “red bag trash” requires additional treatment in the form of chemical or heat sterilization, or incineration. These treatments require additional energy use that results in additional cost to the hospital. Incineration can create other health problems as some products used in health care, such as polyvinylchloride (PVC), when burned release dioxin and carcinogens into the environment (Johnson, 2010). By only placing items that are required in the “red bag trash,” hospitals’ costs are reduced, there is a reduction in energy expenditure, and there is potential for fewer environmental toxicants released into the community.

Frequently, in an effort to reduce transmission of disease, nurses and other providers needlessly discard items in the “red bag trash” when the item can actually go in the general trash. In most hospitals, only items with a significant amount of visible blood are required to go in the “red bag.” Check your hospital’s policy on what needs to be disposed of in the “red bag.” After reviewing the policy, often nurses and other providers have found that they are discarding items in “red bag” trash unnecessarily. Therefore, staff education is often a critical component of your environmental efforts.

Examining the supplies and materials that are used within your hospital is another way to reduce waste while reducing hospital expenses. Nurses should consider medical supplies in terms of excessive packaging and unnecessary reliance on single-use items. Many items used in the hospital setting are packed to prevent contamination and this has led to excessive packaging.

Table 2. Selected hospitals in Pennsylvania with green teams

<table>
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<tr>
<th>Hospital</th>
<th>Contact Information</th>
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<tbody>
<tr>
<td>Main Line Health System</td>
<td>Carol Fazzini, RN&lt;br&gt;Staff Nurse, Telemetry- Bryn Mawr Hospital&lt;br&gt;<a href="mailto:cfazzini@mlhs.org">cfazzini@mlhs.org</a></td>
</tr>
<tr>
<td>Magee Women’s Hospital of UPMC</td>
<td>Judith Focareta, RN, Med&lt;br&gt;Coordinator Environmental Health Initiatives&lt;br&gt;<a href="mailto:focaja@mail.magee.edu">focaja@mail.magee.edu</a></td>
</tr>
<tr>
<td>Geisinger Medical Center</td>
<td>Renee A. Smith, MS, RN, CPAN, CAPA&lt;br&gt;Clinical Nurse Educator, Perioperative Care, In &amp; Out Surgery&lt;br&gt;<a href="mailto:rasmith@geisinger.edu">rasmith@geisinger.edu</a></td>
</tr>
<tr>
<td>Thomas Jefferson University Hospital</td>
<td>Elizabeth Clark, RN&lt;br&gt;Staff Nurse, Emergency Department&lt;br&gt;Nursing Reprehensive, Sustainability Council&lt;br&gt;<a href="mailto:Elizabeth.m.clark@jeffersonhospital.org">Elizabeth.m.clark@jeffersonhospital.org</a></td>
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Speak to your procurement or materials management department to identify if the same product protection can be maintained with less packaging waste. Hospital employees have found that the suppliers are willing to accommodate packaging requests.

While providing patient care, consider if replacing a disposable item with a reusable item could meet the same patient care standard. For example, a same-day surgical center was receiving custom packs that had supplies for specific procedures; the components of the packs were evaluated by the staff. Many of the items, such as disposable gowns, were eliminated from the custom packs and replaced with reusable items. Additionally, items that were not used frequently were eliminated completely from the packs. The surgery center further developed a practice of re-evaluating the supplies used for a specific procedure when a surgical procedure was changed. These actions saved the institution $26,000 a year (Same-Day Surgery, 2010).

Reprocessing medical equipment has been another way to reduce waste. With consideration of cost savings and waste reduction, hospitals have taken previously single-use devices and reprocessed the devices to be reused with another patient (Boone, 2010). Medical reprocessing companies clean, recalibrate, repack, and sterilize items that were previously used and discarded. Now medical equipment such as orthopedic drill bits and invasive cardiac monitoring catheters are being reused with a resulting decrease in hospital waste (Chen, 2010). The U.S. General Accountability Office (2008) examined reprocessing in hospitals across the country and found that when FDA protocols were followed, selected single-use medical equipment were successfully reprocessed and there was no greater risk of infection or other complication with reprocessed devices compared to new devices.

Recycling is another way for the green team to reduce hospital waste. Nurses have initiated battery and light bulb recycling. Batteries are found throughout the hospital in equipment such as telemetry units, beepers, defibrillators, laptops, and cameras. Recycling batteries not only recovers valuable metals such as nickel, steel, zinc, and iron but it also keeps toxic substances such as lithium, cadmium, and mercury out of landfills (Shetlar, Eckhardt, Messmer, Adams & Rogers, 2010). Compact florescent light bulbs (CFLs) use up to 75% less energy than the traditional incandescent bulbs, however the CFLs do contain a trace amount of mercury (Energy Star, 2010). When a CFL burns out the bulb can be recycled to reclaim the mercury and prevent environmental contamination. Speak to your hospital’s battery vendor or waste vendor to find if they are willing to participate in a battery or light bulb recycling program with your hospital (Plisko & Choiniere, 2007).

Purchasing and Materials Management

Some green teams have added “environmentally preferable purchasing” to their list of accomplishments. This is an “upstream” approach to purchasing in that it considers the life-cycle of the product from manufacture through disposal. Products are examined before purchase for the presence of toxic materials, such as mercury, PVC, carcinogens or endocrine disruptors (AHC Media, Inc., 2010). By not purchasing products with these known toxins there is less chance of exposure to patients and staff. Additionally, the hospital does not participate in further contamination in the communities they serve from using known toxins in the manufacturing of products and when discarding the product with the known toxic material back to the community. Environmentally preferable purchasing also includes purchasing multi-use instead of single-use products (AHC Medic, Inc., 2010) and purchasing products made of recycled material whenever possible. The U.S. Environmental Protection Agency (EPA) (1999) offers guidance to environmentally preferable purchasing.

Another toxic substance found in hospitals is the plastic softener di-2ethylhexl phthalate (DEHP). Studies of male infants exposed to DEHP have found a relationship between DEHP and alterations in the developing male reproductive tract as well as decrease in production of male hormones (Health Care Without Harm, 2005). Use of medical products containing DEHP, such as IV bags and IV tubing, is particularly a problem in Neonatal ICUs where preterm infants continue to develop and are bombarded by life-saving medical interventions that may inadvertently lead to exposure of DEHP. Some hospitals, such as Abington Memorial Hospital in Abington, PA, have successfully gone DEHP-free in their Neonatal ICU by purchasing products that do not contain this toxin (Healthcare Improvement Foundation, 2010).

Unused Pharmaceuticals

In recent years, scientists from the U.S. Geological Survey (2011) have found trace amounts of human and veterinary pharmaceuticals including antibiotics, hormones, antidepressants and over the counter medications in U.S. waterways. Although many of these drugs enter the waterways from use in livestock and from human excretion, improper handling of unused medications is another way pharmaceuticals enter the water supply (Becker, Mendez-Quigley & Phillips, 2010). Nurses can play a role in reducing the amount of expired medication that must be discarded by keeping...
only medications that are needed for the current patient population. Additionally, green team nurses need to educate their nurse colleagues in the importance of disposing medications according to hospital policy and include in patient discharge instructions not to flush unused medications down the toilet or rinse down the drain. Instead, unused medications should be returned to a Drug Enforcement Agency approved drug-take back program or placed in a sealed container or sealed plastic bag with coffee grounds or kitty litter to discard in the general trash. The U.S. Environmental Protection Agency (2010) Office of Water offers guidance to hospitals in managing unused pharmaceuticals in its Best Management Practices for Unused Pharmaceuticals at Healthcare Facilities.

Cleaning Products and Hospital Hazards
An on-line survey of nurses’ workplace exposures conducted by the Environmental Working Group and HCWH in collaboration with the ANA and the University of Maryland School of Nursing revealed that nurses are exposed to hazardous substances in the form of housekeeping and sterilization chemicals, pharmaceutical residues, radiation and other toxic substances (Environmental Working Group, 2007). Those nurses who reported frequent exposure to hazardous substances also reported higher rates of asthma, miscarriage, and cancer, as well as birth defects in their children. Hazardous products used in the hospital not only place nurses at risk but also affect other hospital personnel and patients. Nurses need to advocate for safer less caustic cleaning products, following labeling use instructions of all products, and ensuring that proper Occupational Safety & Health Administration (OSHA) regulations are followed when working with radiation and other hazardous substances.

Energy Use
U.S. hospitals are second only to the food industry for high energy use buildings (Johnson, 2011). Hospitals use 2.5 times more energy and produce approximately 30 pounds of carbon dioxide emission per square foot (U.S. Department of Energy, 2009). Energy efficient buildings can reduce energy costs and greenhouse emissions. Some hospitals rely on rooms with natural lighting which can be more appealing to patients while reducing energy needs. To save energy some hospitals rely on motion sensors to automatically turn off lights when the room is not occupied (Johnson, 2010). When not using equipment turn it off, and if possible unplug it. The EPA estimates that if the U.S. healthcare sector would rely more on renewable energy sources and energy efficiency there could be a reduction of energy use by 30% while not noting a change in the quality of patient care (Sayre, Rhazi, Carpenter & Hughes, 2010).

Transportation of patients, staff, and health supplies from automobiles and trucking creates greenhouse gas emissions that influence climate change. Green teams can make recommendations regarding purchasing from local suppliers, incentives for staff to use public transportation or carpooling, and energy efficient routes (such as clustering runs to specific areas each day of the week) used by hospital fleet in deliveries (Sayre et al., 2010). Green team members could recommend that the hospital offer preferential parking for alternative fuel cars and purchase hybrid vehicles when replacing vehicles in the hospital fleet.

Dietary Services
Green team nurses can also encourage sustainable practices of the dietary department, such as using locally grown or organic food and compostable or reusable utensils and dishes. Local food is fresher and does not require energy expenditure in transportation. Organic food does not rely on toxic pesticides. Composting of food scraps is another way to reduce waste hauling fees and reduce energy use in hauling. Some hospitals have taken this a step further and compost food waste on their grounds, have community gardens, and offer weekly farmers markets to the staff to create healthy, locally grown choices for the hospital employees (Sayre et al., 2010). Bryn Mawr Hospital, of the Main Line Health System successfully piloted a local farmers market in 2010.

Conclusion
Green teams provide nurses the opportunity to rely on their nursing knowledge, work across disciplines, and positively influence the communities they serve. Part of any institutional greening initiative involves educating nurses and other staff about the environmental problem, how to prevent it, and their role in improving the environment (Harris, Pisa, Talioaga & Vezeau, 2009).

A green perspective in health care should begin in nursing education as schools of nursing clinical simulation laboratories can have the proper receptacles for waste, use non-toxic products for sanitation, and consider energy use in practice. Faculty can reinforce the ANA’s environmental health practice standard in the clinical laboratory and hospital clinical experiences so new nurses are prepared to meet the environmental health expectations of their practice, and perhaps educate their more experienced nurse colleagues when they graduate.

Green teams do not need to be limited to the hospital setting. Long-term care, outpatient clinics, senior
centers, and home care agencies could establish green teams to consider more environmentally conscious ways to deliver care. By looking at our practice and delivery of care through an environmental health lens nurses can be part of creating healthier workplaces and communities.

References


Same-Day Surgery (2008). Protect your patients and their environment. 34(2), 20-21

Same-Day Surgery (2010). Going green can help environment, boost your facility’s bottom line. 34(1), 1-4


