Sustainability Plan for St. Luke’s Hospital & Health Network

Preliminary Recommendations

Alliance for Sustainable Communities—Lehigh Valley
Sustainability In Healthcare Initiative
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# Sustainability Plan for St. Luke’s Hospital & Health Network

## Preliminary Recommendations

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Introduction

“Above all, do no harm”

As a major provider of healthcare for the Lehigh Valley, St. Luke’s has an opportunity to take a leadership role in improving community health by developing and implementing a network-wide sustainability plan. In addition to making its own institutional operations more sustainable, there are important opportunities for St. Luke’s to act as a role model and to help raise public awareness of the importance of sustainability to the health of the community.

This document is intended to provide a preliminary outline of sustainable practices for St. Luke’s Hospital and Health Network. (Some recommendations parallel those in the operations section of the Green Guide for Health Care and LEED for Healthcare, two other excellent sustainability resources for hospitals.)

It identifies strategies to help St. Luke’s take the lead in sustainability—not only delivering health services, but protecting against adverse health impacts from environmental pollution and from food that has been proven to be nutritionally deficient and to contain substances that are known health hazards. Key strategies involve conserving energy, transitioning to more sustainable food service, reducing the volume of solid waste, and reducing environmental pollution. In addition to conserving natural resources and decreasing the burden of pollution on the community, these measures also offer ways to lower operational costs.

As an example, one serious health issue for the Lehigh Valley is asthma, which is exacerbated by poor air quality and some chemicals used in farming. The Bethlehem Partnership for a Healthy Community, led by St. Luke’s Community Health Department, has shown that asthma rates here are more than double the national average, and in some areas over four times the national average; in 2004, the Asthma and Allergy Foundation of America ranked the Lehigh Valley as the 12th “most challenging place to live if you have asthma” in the entire country. This is just one example of an area where more sustainable practices can contribute directly to community health and wellness.

More sustainable practices also reduce the greenhouse gas (GHG) emissions that cause global warming. The U.S. has only 5% of the world population, but consumes 25% of the world’s resources and creates far more than its share of greenhouse gas emissions. As part of its sustainability plan, St. Luke’s can monitor and reduce its greenhouse gas emissions.

In order for new sustainability initiatives to be successful, staff must be aware and involved, so it is critically important to cover each of the suggested strategies in staff education and training, showing how resource preservation, waste reduction, and other sustainability efforts will promote health throughout the Lehigh Valley. In addition, staff members can contribute valuable new ideas that may not be seen by others. When staff are involved, they tend to encourage others as well, thus building a culture of sustainability. St. Luke’s can encourage staff involvement by recognizing participation and leadership and by creating ongoing opportunities to contribute ideas in every area of sustainable practice.

As a provider and partner in professional education programs, St. Luke’s also has an important opportunity—and responsibility—to prepare professionals who are aware of the elements of sustainability and their health implications. Most current educational programs at St. Luke’s and elsewhere, prepare people to treat health problems even as they perpetuate the very systems and practices that cause or exacerbate these problems.

Next Steps

This guide provides preliminary recommendations to guide St. Luke’s towards a comprehensive plan for becoming more sustainable. St. Luke’s and the Alliance for Sustainable Communities can work together to develop an effective plan that maximizes sustainability in ways that are appropriate for each location. Some strategies are relatively easy to analyze and evaluate, because they require only simple changes in procedure or have immediate financial benefits (e.g., recycling more waste and using recycled products, requesting suppliers to use less packaging, educating staff about waste and energy reduction, and switching off unused electronics). Other strategies (developing ways to reduce the energy used for heating or lighting, minimizing waste, and composting, for example) are clearly beneficial but require more careful analysis and planning to implement successfully. Also, implementation on a network-wide basis, including hospitals, physicians’ offices, physical therapy locations, and other satellite facilities, will require research and analysis so they can be adapted to the unique needs of each location.

Developing a comprehensive plan and moving from ideas to action thus requires considerable research and analysis to identify the most effective strategies, develop effective approaches for implementation, and identify potential community partners. The Alliance for Sustainable Communities can develop a set of related internships for college student interns to obtain academic credit and can provide the needed expertise and supervision to make sure this work is relevant to their academic work while helping them understand the needs and constraints of working with an operation the size of St. Luke’s.

Although the connections between sustainability and community health may seem obvious, there seems to have been very little study or attention to this area. Not only do sustainable practices contribute to community health, but Community Health programs and infrastructure also can help promote greater awareness in the community. In addition to developing a plan for sustainability, we recommend a more thorough exploration of the possibilities to be found in this area, including sharing these results with other institutions.

The sustainability initiative also creates an opportunity for St. Luke’s to develop new or stronger relationships with community partners; in this way, it helps unify and strengthen the community at the same time it moves towards greater sustainability in the healthcare system itself. The Alliance can help St. Luke’s connect with resources throughout the Lehigh Valley that can serve as sources of expertise and as partners in increasing community awareness.

The Alliance is creating an initiative to promote sustainability in healthcare and hopes that St. Luke’s Hospital and Health Network will take a key leadership role for healthcare providers in the Lehigh Valley.
Energy

Community Health Impacts

Coal-fired power plants, the largest source of energy production in the U.S. are major contributors to particulate pollution, which can increase the risk of asthma, respiratory diseases, and heart attacks. Asthma issues are of particular importance in the Lehigh Valley, where air quality has become an issue, according to the American Lung Association. Sulfur dioxide emissions contribute to acid rain. Furthermore, according to the U.S. EPA, coal-fired power plants are the largest source of human-caused mercury emissions.

St. Luke’s can decrease its energy emissions by keeping track of the types of energy it uses, how that energy is used, and implementing measures to use energy more efficiently. Energy efficiency can enhance human health by reducing the particulate, chemical, and greenhouse gas emissions associated with fossil-fuel combustion.

Greenhouse Gas Emissions

Improving air quality requires reducing greenhouse gas emissions. Greenhouse gases cause health and environmental problems. With 5% of the world population, the U.S. consumes 25% of the world’s energy. Greenhouse gas emissions, caused primarily through energy use and transportation, increase ozone conditions as well as cause air pollution. St., Luke’s can monitor its greenhouse gas (GHG) emissions by tracking energy and fuel consumption and using a spreadsheet-based system to calculate GHG emissions based on actual energy and chemical use.

When fossil fuels are burned, greenhouse gas (GHG) emissions are released into the atmosphere where they contribute to global warming. This is true whether the fuel is burned on-site to create heat or burned in a remote power plant that supplies electricity. Power plant GHG emissions include both carbon dioxide (CO₂) and nitrous oxide (N₂O) into the atmosphere through smoke stacks.

Sample Strategies

- Track greenhouse gas emissions and other environmental impacts through a GHG inventory calculator or the Dartmouth-Hitchcock Eco-Footprint calculator
- Use GHG inventory calculator to help determine financial and environmental impacts of sustainability strategies
- Purchase only Energy Star appliances and electronics
- Consider installing co-generation (or tri-generation) system to improve efficiency and reduce GHG by generating both heat and electricity
- Conduct periodic energy audits to identify opportunities for savings
- Install monitoring systems that measure energy use for each building

Hot Water

- Ensure that system is adjusted to deliver needed water temperature
- Clean and flush heating coils as needed
- Repair pipe insulation as needed
- Consider use of passive solar system to meet some hot water needs

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3 http://www.pbs.org/now/science/coal.html
4 http://www.lunginfo.org/
HVAC

- Set temperature controls to maintain actual temperatures of 68°F when heating and 78°F when cooling, except in specific locations where other settings may be appropriate
- Use on-site renewable energy systems and/or purchase certified renewable energy for some or all energy requirements
- Adjust dampers and vents to improve heating and cooling performance
- Clean or replace all filters
- Repair or replace leaking steam traps
- Use variable speed drives for greater efficiency
- Check for air leaks in ducts
- Be sure refrigerant is properly charged
- Inspect windows and doors for air leaks; replace weather stripping or caulk as needed

Electrical – Lighting

- Encourage staff to shut off lights in offices when not in use and when daylight provides adequate lighting
- Use task lighting where appropriate, to allow overall illumination to be reduced
- Replace all incandescent lamps with compact fluorescent lamps (CFL) or LED
- Replace any remaining T12 fluorescents and magnetic ballasts with high-performance T5 or T8 fluorescents and electronic ballasts
- Install occupancy sensors to shut off lighting in infrequently-used work or storage areas
- Install light sensors to shut off excess lighting when daylight provides sufficient illumination ("daylight harvesting")
- Consider removing some lamps in areas where illumination is excessive
- Replace any incandescent lamps in EXIT signs with LED as soon as possible; replace fluorescent lamps in EXIT signs with LED when lamp needs replacement

Kitchens & Food Prep

- Use vent hoods only when cooking
- Keep refrigerator coils clean and free of obstructions
- Pre-heat ovens no more than 15 minutes before use

Potential Financial Impact

Though renewable energy may initially be more expensive, the increasing price of fossil fuels indicates that the hospital would benefit from a greater reliance on renewable energy. Individual strategies will require analyses of initial costs in relation to ongoing health benefits and financial savings.
Food & Nutrition

Community Health Impacts

Healthcare facilities are recognizing the connection between healthy food and a healthy community. Over 250 hospitals in the United States have signed the Healthy Food In Health Care Pledge (copy attached) that was developed by Health Care Without Harm. The pledge focuses on providing food that supports health and phasing out food and food-service practices that are known to contribute to health problems, supporting local farmers and sustainable agriculture, and reducing waste. A 2008 survey of signatories indicates substantial progress towards the goals of the pledge.

We recommend that St. Luke’s make a commitment to implement the pledge. (A draft of a Healthy Food in Health Care commitment is attached.)

Food That Supports Health

Many foods in our industrialized food system are grown using artificial fertilizers, pesticides, antibiotics, and hormones; processed food also contains a variety of substances to prevent spoilage. Many of these practices have been proven to have negative impacts on the health of those who consume it and on the health of the regions where it is grown. Organic and naturally grown foods provide a healthier alternative.

Sustainable agriculture grows food without the use of toxic chemicals, supports the local farming community, and decreases environmental pollution. The typical food item in the United States travels between 1,500 to 2,400 miles from the farmland to the consumer. Transporting food raises greenhouse gas emissions, as well as other pollutants known to cause asthma, cardiovascular disease, and lung cancer. Growing food that will be shipped far away encourages farmers to pick food before it is ripe, which causes it to be less nutritious. The distance also disconnects growers from consumers and increases opportunities for food contamination and nutrient loss. Purchasing locally grown food can improve nutrition, reduce greenhouse gas emissions from transportation, and stimulates the local economy.

Routine use of antibiotics in animal agriculture has been shown to increase antibiotic resistance among bacteria that cause human infections. Pesticide drift, field dust, waste burning, toxic gases from degrading manure, and diesel exhaust from transporting food long distances are all factors related to food production that contribute to asthma, cardiovascular disease and lung cancer. Giving preference to providers that have reduced or eliminated the use of chemicals in growing food supports organic farmers and decreases the chemicals added to the environment. By moving toward a healthier and more sustainable food system, health care can help alleviate human health problems associated with inadequate or inappropriate nutrition, antibiotic resistance, air and water contamination, and global heath issues such as climate change.

Reducing Waste

According to the U.S. Environmental Protection Agency, roughly 20% of food produced in the U.S. is disposed of prior to consumption. Food and food waste products are the second largest component of the health care waste stream, comprising close to 20% of the solid waste volume in medical facilities with food service operations. Excess food can be donated to local agencies that feed the poor and homeless, which also reduces volumes that go to the landfill, reducing waste-disposal costs. Remaining food waste can be diverted by composting. Composting organic matter and applying it to the soil increases soil micronutrients and reduces reliance on chemical fertilizers and their associated industrial, ecologic and health burdens. Not only food

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5 <www.noharm.org>
7 “Air Pollution Linked to Deaths from Lung Cancer.” American Cancer Society. 2002. http://www.cancer.org/docroot/NWS/content/NWS_1_1x_Air_Pollution_Linked_to_Deaths_From_Lung_Cancer.asp
8 www.eqp.state.mn.us/geis/LS_AnilmHealth.pdf
waste, but shredded paper, coffee grounds, and yard waste can be included. The result is an organic fertilizer that adds nutrients back into the soil and helps build soils that are more resistant to erosion.

In addition to the food waste, the hospital also creates unnecessary waste by using individual servings of various condiments and by using single-use plates, cups, utensils, and take-out containers, all of which add to the volume of unnecessary waste. In addition, Styrofoam (polystyrene foam) causes negative health impacts in its production and disposal. In 1986 the EPA listed Styrofoam as the fifth largest type of hazardous waste. Many institutions and businesses have eliminated Styrofoam, and some localities (Portland, Oregon and Orange County, California, for example) have outlawed it entirely. We recommend that St. Luke’s take immediate action to eliminate the use of Styrofoam products and to phase out other single-use packaging.

Additional analysis is needed to the costs and benefits of specific strategies for sourcing food and composting food waste.

**Sample Strategies**

- Purchase reusable dishware to protect virgin resources and reduce waste; eliminate Styrofoam products and other plastic food-service items
- Distribute condiments through large dispensers, rather than individual packets
- Create awareness about healthy food and sustainable food practices among staff, patients, and visitors, using seminars, posters, table tents, and labeling food options to show local, organic, vegetarian/vegan content.
- Whenever possible, purchase from local farms, ranches, and production/processing facilities located within a 100-mile radius of the facility
- Develop seasonal menu options to optimize local food use
- Purchase products made from recycled or renewable materials and without use of hazardous chemicals
- Implement a take-out food plan that reduces waste volumes. Possible options include requiring a deposit for reusable to-go containers, which can be traded out for clean containers when returned or have the deposit returned.
- Inform staff and visitors about local food initiatives, such as food-coops, farmers markets, and community garden updates; host farmers’ markets for the public
- Donate left over food to a local food bank or charity (New Bethany Ministries, for example)
- Implement composting systems to reduce waste and produce organic fertilizer; Install modern food pulpers to remove water from food waste, reducing volume and allowing for an easy transition to composting food waste
- Phase out products with high-fructose corn syrup
- Provide a variety of vegetarian, vegan, Kosher, and Islamic menu options
- Implement a recycling program for dining services, including aluminum, glass, plastic, tin cans, food waste, newspaper, and paper

**Financial Impacts**

Some food waste reduction plans will require additional research or analysis, although they have been proven to pay for themselves through reductions in waste volume and costs of disposable products.

Note: One efficient way to compost is through the purchase of composting units, such as the Earth Tub, which features a simple design with few moving parts. Earth Tubs can process all food waste, including items such as shredded paper, coffee grounds, and leaves. When the hospital implements composting, a food pulper decreases the number of composting units needed.
Transportation

Community Health Impacts

Motor vehicles represent the largest single source of atmospheric pollution\(^9\) including particulate matter and ground-level ozone (both of which contribute to asthma and other respiratory illnesses), nitrogen oxides (a precursor of smog), benzene (a carcinogen), volatile organic compounds (some of which are hazardous and precursors of smog), carbon dioxide (a greenhouse gas and contributor to global climate change), carbon monoxide (a factor in the development of atherosclerosis).

Since motor vehicles emit toxic chemicals into the community, St. Luke’s should encourage patients and employees to use more appropriate transportation (such as public transportation, walking and cycling), which also promotes cardiac, respiratory and muscular health while reducing the amount of carbon dioxide and other greenhouse gases.

Sample Strategies

Commuting

- Provide incentives to employees who commute through alternative transportation (other than motor vehicles)
  - Create priority parking for staff members who carpool
- Educate all staff on alternative transportation and the health impacts of driving
- Identify staff members who would be interested in carpooling, then set up carpool signups
- Create a central location (such as a bulletin board) where staff can gain access to public transportation information, carpool contact information, and bike paths
- Install sheltered bike-racks on campus; provide lockers and showers for those who walk or cycle to work
- Build walking and bike paths where possible, and encourage community use; encourage municipalities to improve access via bicycle and walking routes
- Host community events with cycling groups or stores educating about bicycle maintenance and commuting tips
- Encourage staff to use alternative forms of transportation for trips within 5 miles of their house
- Join CAT—Coalition for Appropriate Transportation and negotiate discounted rates for staff
- Encourage staff input in initiatives to reduce automobile trips

Fleet

- Own, lease, or contract low-emitting or alternative fuel (biodiesel, compressed natural gas) vehicle fleets
- Consider working with a carshare organization to provide basic fleet needs
- Encourages visitors and staff not to leave vehicles idling, which increases air pollution and reduces engine life

Potential Financial Impact

Alternative vehicles require initial investment, though it decreases the hospitals reliance on pollutants such as fossil fuels and shows a strong commitment to environmental practices. Staff members can save money through a reduced reliance on motor vehicles through maintenance and fuel costs. The hospital benefits from healthier, happier, and more productive employees, as well as a connection to community groups.

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\(^9\) [http://www.mde.state.md.us/Programs/AirPrograms/Mobile_Sources/dieselemmiscontrolprog/healthenviroeffects/index.asp](http://www.mde.state.md.us/Programs/AirPrograms/Mobile_Sources/dieselemmiscontrolprog/healthenviroeffects/index.asp)
Waste

Community and Health Impacts

U.S. hospitals generate approximately 6,600 tons of waste per day, with non-hazardous solid waste representing up to 80% of the total.\(^{10}\) Most waste can be recycled, composted, or avoided all together. Recycling protects natural resources and reduces greenhouse gas emissions by reducing demand for virgin materials and reducing the amount of waste sent to landfills and incinerators.

In 1996 EPA finding that medical waste incineration was a major source of dioxin emissions in the United States, many hospitals have dramatically reduced the volume of medical waste.\(^{11}\) Biomedical hazardous waste is the main source of incinerated volume for St. Luke’s, much of which isn’t required to be disposed of in a red bag. Staff education and red bag reduction will lead to community benefits through less incineration and landfill use.

Strategies for food waste reduction are in the Food and Nutrition section of this document, pages 7–8.

Sample Strategies

- Track data and identify major sources of waste volume
- Provide easily understood signs on recycling bins
- Develop a plan to eliminate or reduce plastic bottles
  - Provide signs to water fountains by bottled beverage machines
  - Add fill spouts for water bottles to allow bottles to be reused
- Where possible, set printers for duplex (double-sided) printing
- Provide education on waste reduction and the impact on health in the community
- Issue reusable mugs (either as a green employee giveaway, a gift to all staff members, and/or for sale)
- Use hands-free dispensers to limit paper towel dispensing in restrooms
- Educate staff on the importance of recycling and reducing red-bag and other waste
- Reduce pharmaceutical waste, provide recycling
- Work with local pharmacies to utilize pharmaceutical take-back programs for unused pharmaceuticals\(^ {12}\)
- Remove red bag containers from patient rooms (except ER & ICU) [in progress]

Potential Financial Impact

Waste reduction decreases the amount that the hospital pays to send waste to the landfill. Removing plastic bottle machines would create a financial cost, but there would be a savings from not dealing with bottle waste. Reducing red bag waste would have a large financial benefit. Reducing paper consumption reduces the amount of waste as well as the amount of paper that needs to be purchased. Tracking data would require time commitments, but would provide the necessary data to implement a more successful waste reduction plan by showing major sources of waste volume.

\(^{10}\) http://cms.h2e-online.org/ee/waste-reduction/
\(^{11}\) www.epa.gov/tnn/atw/129/hmiwi/eia_report_final_10-27-08.pdf
\(^{12}\) Shown to be successful in a pharmaceutical reduction project between Philadelphia and local pharmacies, including CVS. http://www.medscape.com/viewarticle/712948
Purchasing

Community Health Impacts

Paper and packaging waste are two key areas that can be impacted by improved purchasing practices. According to the Healthcare Environmental Resource Center (HERC), the U.S. health care industry generates two billion pounds of paper and cardboard each year. Conventional office practices, such as purchasing virgin paper and printing single-sided documents needlessly generates demand for continued logging of forests that provide valuable carbon dioxide sinks and ecological stability in their regions. Using chlorine as the bleaching agent for paper generates persistent bioaccumulative toxic chemicals (PBTs) such as organochlorines and dioxins that are known to produce health problems such as birth defects and cancer.

Use of paper products with high recycled content reduces sulfur and greenhouse gas emissions during manufacture, conserves virgin forest resources, and contributes to healthier forest ecosystems. Purchasing strategies should aim to minimize impacts from the creation, use, and eventual disposal of the product.

Sample Strategies

- Purchase paper that meets the FSC Certified Paper requirements or Green Seal GS-01 for Printing and Writing Paper
- Purchase furniture without toxic chemical treatment, such as:
  - Added urea formaldehyde
  - Heavy metals: lead, mercury, cadmium, and antimony
  - Hexavalent chromium in plated finishes
  - Perfluorinated compounds (PFCs)
- Phase in waste-reduction criteria into contracts for products and services including:
  - Take-back programs
  - Replace disposable with reusable
  - Reduced packaging
  - Readily recyclable materials
- Eliminate products containing PVC
- Eliminate products containing DEHP
- Eliminate products containing mercury
  - Use LED lighting for exit sign illumination
  - Create an inventory for all mercury-containing devices
  - Follow recycling criteria for mercury containing products, including batteries
  - Develop a plan to eliminate any mercury-containing devices within five years

Potential Financial Impact

Raising standards in contracts and purchasing will reduce waste costs through source reduction and divert more waste to recycling.

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13 http://www.hercenter.org/wastereduction/paper.cfm
Water

Community Health Impacts

Only about 1% of the water on Earth is fresh water. Over-consumption, drought and poor water management have led thirty six states in the U.S. to anticipate local, regional, or statewide water shortages by 2013. Processing potable water requires large amounts of energy and thus contributes to air emissions associated with using fossil fuels. Potable water is used to operate cooling towers and boilers, among other things, making up 75% of the average hospital water use. Reducing water use reducing cost and resource consumption.

We recognize the importance of water conservation, but this area requires further research before more substantive recommendations can be made.

Sample Strategies

- Track water use data and consumption patterns; identify opportunities for water savings
- Install low-flow showerheads and fixtures in all facilities
- Consider installing metering or flow control devices for potable water use in all departments and systems

Potential Financial Impacts

(To be determined.)

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14 http://www.epa.gov/WaterSense/pubs/supply.htm
Indoor Environment

Community and Health Impacts

Preliminary research identifies three promising areas for improvement: cleaning products, hand sanitizers, and paints and other products that release volatile organic compounds (VOC).

Traditional cleaning products present a variety of human health and ecological concerns. They may contribute to poor indoor air quality and contain chemicals that cause cancer, reproductive disorders, respiratory ailments, eye and skin irritation, central nervous system impairment, and other human health effects. Cleaning products have also been shown to be a primary cause of work-related asthma, particularly in nurses and cleaning staff. In health care settings, continuous 24/7 building occupancy leads to the requirement for cleaning while the building is occupied, leaving patients and staff susceptible to cleaning chemicals. Non-toxic and least-toxic cleaning products exist for nearly every health care facility need.

Future research is required to determine best practices that are appropriate for St. Luke’s.

Sample Strategies

- Follow specifications for the use of chemical concentrates with appropriate dilution systems to minimize chemical use
- Purchase environmentally-preferable cleaning products
- Purchase paper towels made from recycled, unbleached paper
- Design buildings to be pest-resistant and use door sweeps
- Phase out paints containing Volatile Organic Compounds (VOC)
- Phase out carpets & padding containing formaldehyde

Potential Financial Impacts

(To be determined.)

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Outdoor Environment – Grounds & Landscaping

Community Health Issues

Preserving the natural surroundings of the community promotes a healthy ecosystem, including clean water systems and air quality. Natural areas have been shown to be effective therapeutic resources for patients, staff, and visitors.

Key strategies for reducing pollution include limiting the amount of synthetic chemicals and motorized equipment used for lawn care, landscaping, snow removal, and cleaning. Additional information is needed to develop specific recommendations.

Strategies

- Provide opportunities for holistic patient therapy, including gardening, nature walks, etc.
- Use native species where possible
- Provide and maintain walking trails
- Host a community garden
- Provide recycling and waste containers outside
- Phase out use of artificial fertilizers in favor of organic compost
- Phase out artificial pesticides in favor of biological controls
- Practice environmentally safe snow-removal techniques whenever possible, use physical removal instead of chemicals such as salt.

Potential Financial Impact

(To be determined.)

16 There are several alternatives to salt. Currently liquid deicers that are chloride-free contain a base made from Potassium Acetate (KA) are found to require a much less frequent application of chemicals and have a low environmental impact. Whenever possible, however, snow should be removed manually to avoid the addition of chemicals into the environment.
Facilities Planning & Construction (including major renovations)

‘Green Building’

Community and Health Impacts

Preliminary research indicates that resource reuse and recycling reduce destruction of virgin resources, thus preventing associated ecosystem disruption, energy expenditure and toxic emissions, while diverting materials from disposal. High-performance buildings can be so efficient that initial costs—not just operating expense—can be reduced.

The use of regional building materials may avoid local and remote human health impacts that result from transportation to the project site.

Human and environmental health is inextricably linked with forest health. Sustainable forestry protects water quality by reducing water and soil runoff and pesticide and herbicide use. Specifying and procuring certified sustainably harvested wood increases acreage using sustainable management practices. These practices also protect aquatic life, including threatened and endangered species, and maintain viable diverse plant life increasing air filtration and carbon dioxide sequestration. The balancing of carbon dioxide mitigates global climate change, and thereby reduces the spread and redistribution of disease that can be a consequence of climate change. Sustainable sourcing of materials should not result in compromised indoor air quality, so screening for emissions is a linked attribute.\(^\text{17}\)

Developed areas created a heat island effect, with higher temperature than undeveloped areas; these higher temperatures are a direct health threat and also tend to increase energy usage, thus creating more pollution and GHG emissions from power generation.

Sample Strategies

- Adopt policy requiring all new construction and major renovations to meet LEED Silver or higher standards
- Where possible, used recycled and locally-produced materials
- Utilize maximum daylight inside the building to enhance employee and patient health, conserve energy, and reduce GHG
- Maintain the functioning natural habitat by protecting native species
- Install green (vegetative) roofs
- Install roofing material having a Solar Reflectance Index greater than 75%
- Follow standards of the Green Guide for Health Care and LEED for Healthcare

Potential Financial Impact

Experience in other healthcare settings has shown that it is possible to reduce both construction and operating costs with an integrated design process for a high-performance building. Higher insulation values and tighter building envelope reduce equipment requirements and operating costs for both heating and cooling, while green roofs have much longer lives and higher insulation values and than conventional roofs. Additional research is required before specific recommendations can be made for St. Luke’s.

\(^\text{17}\) Green Guide for Health Care \(<\text{www.gghc.org}>\) / LEED for Healthcare \(<\text{www.usgbc.org}>\)
Healthy Food in Health Care Commitment

Based on the Healthy Food in Health Care pledge developed by Health Care Without Harm <www.noharm.org>

The following text is suggested as a starting point for developing a Healthy Food in Health Care Commitment designed to provide an initial structure to institutions that sign the Pledge.

We are deeply concerned by the increasing evidence that our industrialized food system does not support health but in fact undermines our health. It produces food that is lower in essential nutrients and higher in additives—some of them known toxins—and also pollutes our environment with toxins that now appear in soil and water in many areas of the country.

Clearly, our industrialized food system, the way in which we produce and distribute food, is failing to protect public health. Poor nutrition is a risk factor for four of the six leading causes of death in the United States—heart disease, stroke, diabetes and cancer. Nutrition-related chronic diseases are placing new demands on an already overburdened health care system and taking their toll on human productivity and quality of life.

This industrialized food system favors the production of animal products and highly-refined, calorie-dense foods, rather than fresh fruits and vegetables, whole grains, and other high fiber foods important for health... [and relies on] methods of production and distribution that negatively affect human and environmental health.

— Menu for Change – Healthy Food in Health Care, Health Care Without Harm

We commit our institutions to take the following steps to implement the Healthy Food in Health Care pledge in our facilities and educate employees, partners, and the community about the importance of food in maintaining health:

1. Initiate the development of a comprehensive plan for achieving healthy and sustainable food services throughout the Hospital, as outlined in the Healthy Food in Health Care pledge, as soon as possible.
   a. Within two months of signing this document, create institutional structures to guide the development and implementation of the plan.
   b. Within twelve months of signing this document, develop an institutional action plan that includes:
      (1) Target dates for achieving the goals of the Healthy Food in Health Care pledge as soon as possible;
      (2) Interim targets for goals and actions in support of those goals;
      (3) Actions to make staff, patients, and the public aware of healthy and sustainable food and food service practices; and
      (4) Mechanisms for tracking and reporting progress on goals and actions.

2. Initiate four or more of the following tangible actions in support of the Healthy Food in Health Care pledge, while the more comprehensive plan is being developed.
   ❏ Make reusable mugs available for beverages and promote their use instead of single-use products
   ❏ Increase by at least 50% the percentage of food purchased from local farmers, with a goal of at least doubling the percentage within twelve months
   ❏ Label cafeteria and menu offerings to show ingredients, source, and nutrition information

Alliance for Sustainable Communities–Lehigh Valley
Within three months, phase out any milk products that are produced with the use of rBGH or antibiotics except those for specific therapeutic use

Phase out Styrofoam and other single-use products; transition to the use of reusable plates, cups, glasses, and utensils as the standard option

Switch to eggs and poultry from free-range chickens and eliminate poultry raised with feed containing arsenic

Reduce sugar and fat in recipes by 25% overall

Develop and distribute educational materials about the need for healthier and more sustainable food and food service practices

Encourage partner institutions to adopt the pledge

Start composting at least 25% of food waste

3. Make the commitment and action plans publicly available on the website and intranet.

4. Encourage other healthcare institutions and our partner institutions to join us in this effort by signing on to this commitment.
Healthy Food in Health Care Pledge

The Healthy Food in Health Care Pledge is a framework that outlines steps to be taken by the health care industry to improve the health of patients, communities and the global environment.

As responsible providers of health care services, we are committed to the health of our patients, our staff and the local and global community. We are aware that food production and distribution methods can have adverse impacts on public environmental health. As a result, we recognize that for the consumers who eat it, the workers who produce it, and the ecosystems that sustain us, healthy food must be defined not only by nutritional quality, but equally by a food system that is economically viable, environmentally sustainable, and supportive of human dignity and justice.

We are committed to the goal of providing local, nutritious and sustainable food.

Specifically, we are committed to the following healthy food in health care measures for our institution. We pledge to:

**Increase** our offering of fruit and vegetables, nutritionally dense and minimally processed, unrefined foods and reduce unhealthy (trans- and saturated) fats and sweetened foods.

**Implement** a stepwise program to identify and adopt sustainable food procurement. Begin where fewer barriers exist and immediate steps can be taken, such as the adoption of rBGH free milk, fair trade coffee, or selections of organic and/or local fresh produce in the cafeteria.

**Work** with local farmers, community-based organizations and food suppliers to increase the availability of fresh, locally-produced food.

**Encourage** our vendors and/or food management companies to supply us with food that is produced in systems that, among other attributes, eliminate the use of toxic pesticides, prohibit the use of hormones and non-therapeutic antibiotics, support farmer and farm worker health and welfare, and use ecologically protective and restorative agriculture.

**Communicate** to our Group Purchasing Organizations our interest in foods whose source and production practices (i.e. protect biodiversity, antibiotic and hormone use, local, pesticide use, etc) are identified, so that we may have informed consent and choice about the foods we purchase.

**Develop** a program to promote and source from producers and processors which uphold the dignity of family, farmers, workers and their communities and support sustainable and humane agriculture systems.

**Educate** and communicate within our system and with our patients and community about our nutritious, socially just, and ecologically sustainable healthy food practices and procedures.

**Minimize** and beneficially reuse food waste and support the use of food packaging and products that are ecologically protective.

**Report** annually on implementation of this Pledge.

Signed ___________________________ Date _____________________

Health Care Without Harm

Alliance for Sustainable Communities—Lehigh Valley